HUMANITARIAN PROJECT FUNDING PROPOSAL FOR

COOPERATIVE INDUSTRIAL HEMP FIBER PRODUCTION

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DESCRIPTION: This is a narrow long-term humanitarian project funding model proposal for *cooperative industrial hemp fiber production (CIHFP)*, which endorses a five year growth plan that combines accepted requirements of: a general cooperative; a membership cooperative; an agricultural cooperative; and worker cooperative organization(s), to transform a self sustaining means of improving the cooperative economic welfare of native tribes controlling land and takes into consideration unique strategic resources contiguous to Federal designated toxic waste sites at locations throughout the United States, and for instance this *CIHFP* startup model cannot ignore say: Idaho Thorium [(1)] deposits [(2)], and with a growing climate conducive for Industrial Hemp Fiber production,[(3)] not to be confused with marijuana [(4)].

This *CIHFP* proposal also intends to support Federal and State previously designated waste cleanup site efforts for the greatest good that coincide with existing surrounding tribes and tribal member skills and experience as agricultural producers, marketers or consumers of products, and or to encourage their effective organization for long term self-sufficient housing, education, social services and energy needs of participating Tribal cooperative associations for rendering mutual help and service long after the cleanup is successful.

This ***CIHFP* funding model** would operate through the *PRIVATE AMERICAN CITIZEN BANK* (PAC Bank) an association now on application to be licensed in New York for use by the non-profit *AMERICAN COOPERATIVE RELIEF ASSOCIATION* (ACRA) members exclusive use of *PRIVATE AMERICAN CITIZEN* (PAC) to *hypothecate startup costs* with the PAC Bank (see **Exhibit E**) through the Federal Reserve Bank of New York (FRBNY) and related entity(s); and *CIHFP* initially should use say a five year growth plan for its startup implementation then to operate through a PAC / ACRA member's local state level tribal cooperative(s) - in this instant proposal Idaho, and or its adjoining State(s) used elsewhere under the jurisdiction of the United States of America in each respective State of the several States and territories accordingly.

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[1] Thorium is typically found in the minerals thorite, thorianite and monazite however monazite is the only mineral from which Thorium is currently mined. ... India and the United States currently have the most thorium deposits in the world (Pohl, 2011). See **Exhibit A**

[2] Thorium - Rare Earth Minerals located on the original Lemhi Valley ...www.lemhi-shoshone.com/thorium_rare_earth_salmon_idaho.html The Lemhi Pass thorium and rare-earth deposits in Idaho and Montana are the largest known in the U.S. Entitled "Mineralogy of the Lemhi Pass Thorium" the report says 100,000 tons of thorium oxide are "reasonably assured"... See **Exhibit B**

[3] https://en.wikipedia.org/wiki/Hemp See **Exhibit C**

[4] https://www.businessinsider.com/farm-bill-legalizes-hemp-boom-marijuana-cbd-industry-2018-12 **Exhibit D**

That CIHFP participants nationally through ACRA and as members of a local cooperative share in annual equity, as effectively demonstrated over time under the venerable State of New York Cooperative Law (see **Exhibit F**) and related law compliance.

As a first approximation calculation for this *CIHFP* funding model, we use the demographics of say Nevada and Idaho tribes that are already poised for this *CIHFP* effort that may include following associations:

1. Confederated Tribes of the Goshute Reservation, Nevada and Utah
2. Duckwater Shoshone Tribe of the Duckwater Reservation, Nevada
3. Ely Shoshone Tribe of Nevada
4. Fort Mojave Indian Tribe of Arizona, California & Nevada
5. Kootenai Tribe of Idaho
6. Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony, Nevada
7. Lovelock Paiute Tribe of the Lovelock Indian Colony, Nevada
8. Moapa Band of Paiute Indians of the Moapa River Indian Reservation, Nevada: Cedar Band of Paiutes (*formerly the Cedar City Band of Paiutes*); Kanosh Band of Paiutes; Koosharem Band of Paiutes; Indian Peaks Band of Paiutes; Shivwits Band of Paiutes
9. Paiute-Shoshone Tribe of the Fallon Reservation and Colony, Nevada
10. Pyramid Lake Paiute Tribe of the Pyramid Lake Reservation, Nevada
11. Reno-Sparks Indian Colony, Nevada
12. Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
13. Shoshone-Paiute Tribes of the Duck Valley Reservation, Nevada
14. Summit Lake Paiute Tribe of Nevada
15. Te-Moak Tribe of Western Shoshone Indians of Nevada
    Four constituent bands: Battle Mountain Band; Elko Band; South Fork Band;Wells Band
16. Walker River Paiute Tribe of the Walker River Reservation, Nevada
17. Washoe Tribe of Nevada & California: Carson Colony; Dresslerville Colony; Woodfords Community; Stewart Community; Washoe Ranches
18. Winnemucca Indian Colony of Nevada
19. Yerington Paiute Tribe of the Yerington Colony & Campbell Ranch, Nevada
20. Yomba Shoshone Tribe of the Yomba Reservation, Nevada

Based upon the foregoing *CIHFP* the funding descriptive model is used nationally among selected tribes from the **List of Indian Reservations / Colonies in the United States** (see **Exhibit G**), it is first proposed for 42856 members of the tribal population residing on the reservations are served and control 4870 square miles of land available and with strategic resources involved would be:

Reservation Legal Description	State(s)	Population	Sq. Miles
Timbi-Sha Shoshone Reservation	CA, NV	24	12.79
Washoe Ranches Trust Land	CA, NV	2,916	146.04
Coeur d'Alene Reservation	ID	6,760	536.77
Fort Hall Reservation	ID	5,767	855.59
Kootenai Reservation	ID	82	3.18
Nez Perce Reservation	ID	18,437	1,204.25
Duck Valley Reservation	ID, NV	1,309	452.6
Battle Mountain Reservation	NV	148	1.05
Campbell Ranch	NV	443	2.59
Carson Colony	NV	242	0.28
Dresslerville Colony	NV	314	1.23
Duckwater Reservation	NV	156	6.25
Elko Colony	NV	736	0.3
Ely Reservation	NV	202	5.65
Fallon Paiute-Shoshone Colony	NV	130	0.17
Fallon Paiute-Shoshone Reservation	NV	581	13.04
Las Vegas Indian Colony	NV	154	6.24
Lovelock Indian Colony	NV	88	0.032
Moapa River Indian Reservation	NV	260	110.97
Pyramid Lake Paiute Reservation	NV	1,660	729.52
Reno-Sparks Indian Colony	NV	919	3.36
South Fork Reservation	NV	122	26.56
Stewart Community	NV	147	4.42
Summit Lake Reservation	NV	1	19.73
Walker River Reservation	NV	746	531.35
Wells Colony	NV	70	0.13
Winnemucca Indian Colony	NV	53	0.56
Yerington Colony	NV	151	0.031
Yomba Reservation	NV	95	7.31
Goshute Reservation	NV, UT	143	188.1
		========	=======
Total		**42856**	**4870.09**

INDUSTRIAL HEMP FIBER PRODUCTION

This *CIHFP* effort intends to augment Industrial Hemp Fiber Production as a long term agricultural solution to stabilize the Tribal cooperative associations with the products derived from processing, including plywood and other building products (See **Exhibit H**) and to strengthen existing organizations and production capabilities with a *win-win* economic strategy.

Like Alcohol production earlier in the Twentieth Century, Hemp was made illegal to grow without a permit in the U.S. under the Controlled Substances Act passed in 1970 because of its relation to marijuana, and any imported hemp products must meet a zero tolerance level. Some say because of resistance from the federal Drug Enforcement Administration, making "large-scale hemp growing" in the United States "not viable" as late as 2013. In 2013, after the legalization of cannabis in the state, several farmers in Colorado planted and harvested several acres of hemp, bringing in the first hemp crop in the United States in over half a century. Colorado, Vermont, California, and North Dakota have passed laws enabling hemp licensure. All four states are waiting for permission to grow hemp from the DEA. Currently, Oregon has licensed industrial hemp as of August 2009. Congress included a provision in the Agricultural Act of 2014 that allowed colleges and state agencies to grow and conduct research on hemp in states where it is legal. Hemp production in Kentucky, formerly the United States' leading producer, resumed in 2014. Hemp production in North Carolina resumed in 2017, and in Washington State the same year. By the end of 2017, at least 34 U.S. states had industrial hemp programs. In 2018, New York began taking strides in industrial hemp production, along with hemp research pilot programs at Cornell University, Binghamton University and SUNY Morrisville.

As of 2015 the hemp industry estimated that annual sales of hemp products were around US$600 million annually; hemp seeds have been the major force driving this growth.

Despite this progress, hemp businesses in the US have had difficulties expanding as they have faced challenges in traditional marketing and sales approaches. According to a case study done by *Forbes*, hemp businesses and startups have had difficulty marketing and selling non-psychoactive hemp products, as some online advertising platforms and financial institutions do not distinguish between hemp and marijuana.

The Hemp Farming Act of 2018, part of the 2018 Farm Bill signed by President Donald Trump December 20, 2018, changed hemp from a controlled substance to an agricultural commodity, legalizing hemp federally, which made it easier for farmers to get production licenses, get loans to grow hemp, and allowed them to get federal crop insurance. Hemp fiber has been used extensively throughout history, with production climaxing soon after being introduced to the New World. For centuries, items ranging from rope, to fabrics, to industrial materials were made from hemp fiber. Hemp was also commonly used to make sail canvas. The word "canvas" is derived from the word *cannabis*. Pure hemp has a texture similar to linen. Because of its versatility for use in a variety of products, today hemp is used in a number of

consumer goods, including clothing, shoes, accessories, dog collars, and home wares. For clothing, in some instances, hemp is mixed with lyocell.

Building material using *hempcrete in c*oncrete-like blocks made with hemp and lime have been used as an insulating material for construction. Such blocks are not strong enough to be used for structural elements; they must be supported by a brick, wood, or steel frame. However, hemp fibres are extremely strong and durable, and have been shown to be usable as a replacement for wood for many jobs, including creating very durable and breathable homes. The most common use of hemp lime in building is by casting the hemp and lime mix while wet around a timber frame with temporary shuttering, and tamping the mix to form a firm mass; after the removal of the temporary shuttering, the solidified hemp mix is then ready to be plastered with a lime plaster.

The first example of the use of hempcrete was in 1986 in France with the renovation of the Maison de la Turquie in Nogent-sur-Seine by the innovator Charles Rasetti. In the UK hemp lime was first used in 2000 for the construction of two test dwellings in Haverhill. Designed by Modece Architects, who pioneered hemp's use in UK construction, the hemp houses were monitored in comparison with other standard dwellings by BRE. Completed in 2009, the Renewable House is one of the most technologically advanced made from hemp-based materials The first US home made of hemp-based materials was completed in August 2010 in Asheville, North Carolina.

A panelized system of hemp-lime panels for use in building construction is currently under test in a European Union-funded research collaboration led by the University of Bath. The panels are being designed to assure high-quality construction, rapid on-site erection, optimal hygrothermal performance from day one, and energy- and resource-efficient buildings. The 36-month-long work programme aims to refine product and manufacturing protocols, produce data for certification and marketing, warranty, insurance cover, and availability of finance. It also includes the development of markets in Britain, France, and Spain.

Hemp is used as an internal plaster and is a mixture of hemp hurd (shive) mixed with larger proportions of a lime-based binder. Hemp plaster has insulative qualities.

Plastic and composite materials are a mixture of fiberglass, hemp fiber, kenaf, and flax has been used since 2002 to make composite panels for automobiles. The choice of which bast fiber to use is primarily based on cost and availability. Various car makers are beginning to use hemp in their cars, For example, the Lotus Eco Elise and the Mercedes C-Class both contain hemp (up to 20 kg in each car in the case of the latter).

Paper*: Hemp paper* varieties consisting exclusively or to a large extent from pulp obtained from fibers of industrial hemp. The products are mainly specialty papers such as cigarette paper, banknotes and technical filter papers. Compared to wood pulp, hemp pulp offers a four to five times longer fibre, a significantly lower lignin fraction as well as a higher tear resistance and tensile strength. However, production costs are about four times higher than for paper from wood, so hemp paper could not be used for mass applications as printing, writing and packaging paper.

PROJECT MANAGEMENT

This *CIHFP* effort, notwithstanding discussion of the necessary coordination and approvals with the United States agencies, and the respective tribes, uses PAC Bank project financial and critical path project management compliance oversight for startup project management in close coordination with the professional expertise necessary that would include:

Tony DuPont PE (a member of PAC and pending ACRA) is a member of the Sault Ste. Marie Tribe of Chippewa Indians and was raised on the side of Moscow Mountain in Idaho. He sold soda pop at University of Idaho football games as a kid, bought the most expensive bike in town, and promptly disassembled it on the floor of the garage. Tony has always been drawn to science, mechanical systems, creating, and building from a very early age. He studied mechanical engineering at the University of Idaho and then worked as a lead engineer in manufacturing and mining technology, and managed a Superfund cleanup site. Tony started Io DuPont, LLC in 2004 to pursue his own research and development, full time. The first product his new company introduced was a synthetic fiber cable system for bicycles called Power Cordz. The cables are used by professional racers in every major cycling discipline—even (unofficially) racing in the Beijing Olympics. Another project, an infinitely variable transmission (IVT) that uses positively engaged forces to be incredibly efficient and fully scalable, achieved proof of concept in the spring of 2010 and is moving quickly through the final stages of development.

Dr. Chien Wai received his Ph.D. degree in Chemistry from the University of California, Irvine, in 1967 under the guidance of Professor F. Sherwood Rowland. After two years of post-doctoral study at UCLA, he joined the chemistry faculty at the University of Idaho in 1969. He has been teaching and doing research at the University of Idaho for 40 years. In the past four decades, Wai has mentored 40 Ph.D. students and 30 M.S. students in chemistry at the University of Idaho. He has also published 270 research papers and received 15 U.S. patents.

Dr Thomas Sawyer PhD. (Ute Indian http://tesawyer.net/) is in full support of our project, and who has over fifty years technical and managerial experience in high-technology industries, government, and university faculties resulting in a unique combination of entrepreneurial zeal and public company discipline. Excellent results while serving as chief executive officer in start-ups and turnarounds. Developed and implemented management infrastructures for full profit and loss responsibility. Extensive experience in taking high technology firms public while raising over $2 billion in funding. In-depth community relations experience at local, state, and federal levels, including service as a senior advisor to four U.S. Presidents -- Nixon, Ford, Reagan, and Bush Senior. **(5)**

[5] Dr. Sawyer served as Chairman of National Advisory Council for Indian Affairs from 1982-1988 as an appointee of President Reagan; Acting Under Secretary of the Department of Health, Education, and Welfare to Robert Finch, Secretary, from 1968-1969; Director of the Office of Economic Opportunity in the Executive Offices of President Nixon from 1973-1974; appointed by President Ford in 1974 as a Member of the National Council on Indian Opportunity; assisted with international economic development from 1989-1991 under President George H.W. Bush.

SUMMARY

This *CIHFP* start-up effort uses a complying cooperative as shown in Exhibit F that shall be either a general cooperative, a membership cooperative, an agricultural cooperative as defined in related law and or a worker cooperative as defined therein for successful use by the respective PAC / ACRA member's local state level tribal cooperative(s) - in this instant proposal Idaho, and or eventually its adjoining State(s) used elsewhere under the jurisdiction of the United States of America and in each respective State of the several States and territories..

A cooperative corporation shall be classed as a non-profit corporation, since its primary object is not to make profits for itself as such, or to pay dividends on invested capital, but to provide service and means whereby its members may have the economic advantage of cooperative action, including a reasonable and fair return for their product and service.

The term "member" means the holder of a membership in a cooperative, whether evidenced by a certificate of membership or by a certificate of stock or by other authorized means of identification. The term includes a member association or corporation as provided in this chapter.

The term "patron" refers to persons, partnerships, associations and corporations who transact business with the cooperative either as producers or purchasers, whether members or not.

A cooperative corporation does not include any corporation which is formed or may be formed under the banking law, the insurance law, the railroad law or the transportation corporations law. Except as otherwise expressly provided in this chapter, no cooperative corporation shall do any business for which a corporation may be formed under any such law; but the lawful operations of a cooperative credit corporation as authorized in this chapter shall not be deemed banking or violation of any provisions of law as to banking.

A membership cooperative is a non-stock cooperative which admits only natural persons to membership, which provides services only to its members and which makes no distribution of net retained proceeds other than to its members on the basis of their patronage.

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This ***CIHFP* focuses on tribal community / family participation** first in growing Sativa in individual / family greenhouse(s) to germinated plants (e.g. see **Exhibit I**) then to be assembled for transplanting collectively on Tribal land (e.g. see **Exhibit J**) accordingly on a cost plus labor basis as members of the cooperative then to share in annual equity under related law compliance.

This **CIHFP *startup costs* in conjunction with PAC Bank and ACRA** shown at Exhibit E are to be projected by the various tribal agreements for purposes of which their general cooperative corporations are formed primarily for mutual help, not conducted for profit, for the purposes of assisting its members, including other cooperatives with which it is affiliated, by performing services connected with the purchase, financing, production, manufacture, warehousing, cultivating, harvesting, preservation, drying, processing, cleansing, canning, blending, packing, grading, storing, handling, utilization, shipping, marketing, merchandising, selling, financing or otherwise disposing of the agricultural and food products of its members or of any by-products thereof, including livestock waste or other organic agricultural wastes and the capture of methane and other gases for the generation and use or sale of energy, as defined in related the energy law, or connected with the acquisition for its members of labor, supplies and articles of common use, including livestock, equipment, machinery, food products, family or other household and personal supplies, to be used or consumed by the members, their families or guests, or for carrying on any other household operation or educational work in home economics and cooperation by or for its members, or for buying, selling or leasing homes or farms for its members, or building or conducting housing or eating places cooperatively, or for furnishing medical expense indemnity, dental expense indemnity, or hospital services to persons who become subscribers under contracts with such corporations in the manner provided in related insurance law, or for the purpose of organizing agency or credit corporations.

So an not to be thought ignored, PAC as a matter of planning background for this CIHFP, has reviewed the U.S. Department of Agriculture statistics on crop production and distribution as shown in Exhibit charts see **Exhibit K**.

HUMANITARIAN PROJECT FUNDING PROPOSAL FOR COOPERATIVE INDUSTRIAL HEMP FIBER PRODUCTION

United States has the most thorium deposits in the world (Pohl, 2011) **Exhibit A**

The Solution

Mining
- Locations of Deposits
- Opening New Mines
- Mining Oceans
- Mining Asteroids

Improving Technology
- Green Mining
- Green Refining
- Alternative Technologies

Recycling
- Mining Landfills
- Stockpiling
- Future Prospects

International Regulation
- Trade Regulation
- Worker Safety
- Protocol

Improving Awareness
- Information Exchange
- Transparent Supply Chain
- Recycling Awareness

Specialized Solutions
- Platinum Group
- Fissile Elements
- Phosphorus

The Solution >> Mining >> Finding New Locations

Locations of Deposits

Finding and defining strategic mineral deposits

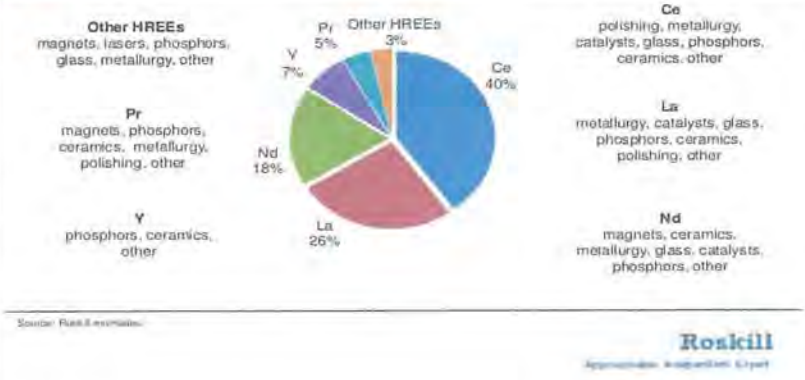
Summary

The US Geological Survey (USGS) predicts that many strategic metals will be in critical demand within the next 100 years and some within the next 30 years. In some cases, the concern about a lack of resources stems from government's inaccurate assessments of their own mineral resources. This lack of understanding means that reserve estimates often grow as more mines are opened: "in just 1 year, from 2009 to 2010, the USGS, increased its estimate of lithium resources from 13.8 to 25.5 Mt (1 Mt = 1 million tons)" (Gruber, 2011). Additionally, reserve projections often underestimate the contents of the earth's crust because lower ore grade deposits may not be considered a reserve (World Nuclear Association, 2012). Demand for elements varies by element group (see Table 1) and the variety of strategic elements results in a similar variety of supply problems. For some elements, such as the rare earth elements (REEs), the problem is production. Current mines are not sufficient to meet demand for all the metals, particularly dysprosium and neodymium (Vaccari, 2009) (see REE demand breakdown figure below). For other elements, such as uranium, the rare metals, phosphorus and platinum group elements (PGEs), production is less of a concern (Vaccari, 2009).

Current Demand Rates Varying by Element Group (Table 1):

Element	Global Reserves (tonnes = t, kilograms = kg)	Current Yearly Demand
REEs	110,000,000 t (USGS 2011)	136,000 t (USGS 2011)
Platinum group elements	48,000,000 kg (Wilburn, 2004)	245,000 kg (Loferski, 2011)
Uranium	5,327,200 t (Supply 2012)	68,000 t (Supply 2012)
Phosphorus	71,000,000 t (USGS, 2012)	9,800,000 t (Schroder, 2010)
Lithium	13,000,000 t (Gruber 2011)	220,000 t (Gruber 2011)

As an example, here is the REE demand breakdown by element in 2012 (Shaw, 2012)

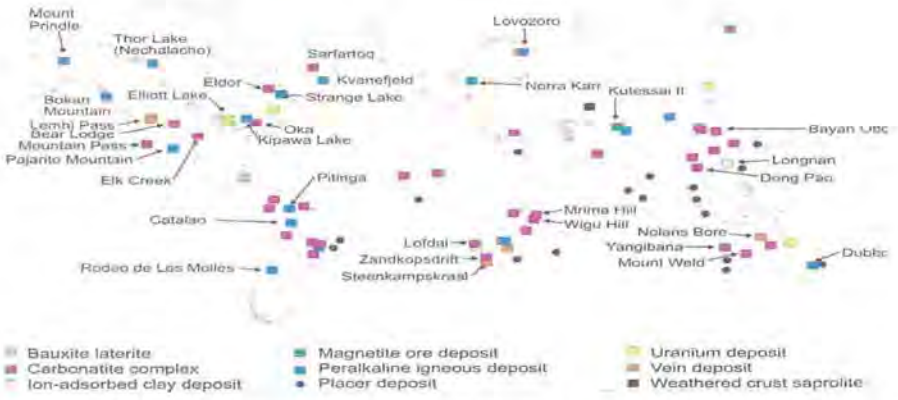


Source: http://image.slidesharecdn.com/globaldemandforrareearths-120831082456-phpapp01/95/slide-5-728.jpg?1346419795

To alleviate the approaching shortage of many strategic elements, we suggest two approaches; opening new mines and increasing the productivity of existing mines. Locating more deposits to open new mines is more practical. However, an important part of our plan is to develop technologies that increase mining yield.

Currently, there are only a few mines that supply the entire world's demand for REEs and most of them are located in China. The largest REE mine in the world, Bayan Obo, alone provides 40-50% of all REEs. In 2010, Bayan Obo and other REE mines in China provided approximately 97% of the global supply (Humphries, 2012)

China no longer accounts for all of the global REE supply due to increased production in the rest of the world. There are only four REE-specific mines that exist outside of China, two of which opened in the past year (other mines worldwide only produce REEs as a byproduct). These other mines are Mountain Pass in the United States, Mount Weld in Australia, Lovozero in Russia, and Kerala in India. However, these mines are not the only locations of REE deposits.



(Source: http://www.dggs.alaska.gov/webpubs/dggs/ic/text/ic061.PDF).

As the demand for REEs increases, it will become both necessary and more economically feasible to mine in other locations. Although many additional deposits of REEs have been discovered - and their economic feasibility debated by many countries - it will continue to become important to find new deposits. Private funding will continue to be focused on junior exploration companies in an effort to increase known reserves.

Geology

Rocks are composed of minerals, which are solid substances with a regular crystalline structure. Strategic elements are found as either major or minor constituents within the crystal lattice of minerals. Locations of minable elements can be determined by the deposits of the associated rocks and minerals which, when deposited in significant and refinable concentrations, are called ores. The location of elements varies based on the minerals of

America, China, Morocco and Western Sahara, and the Russian Federation. These four countries combined produce 72% of the world's phosphorous (Zapata, 2004).

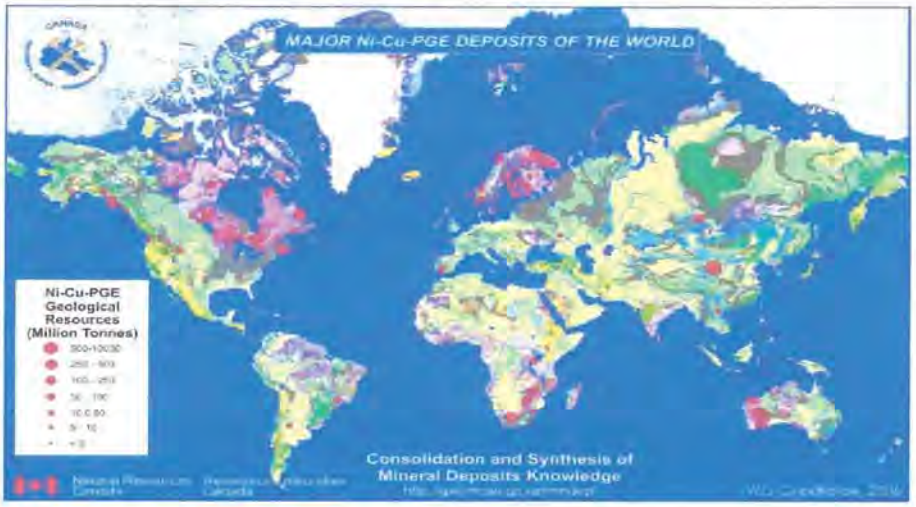
Here is a map of all of the phosphorus deposits in the world:

(Zapata, 2004)

Platinum Group Elements (PGEs)

Platinum group elements are mined from mafic and ultramafic igneous rocks, in alluvial and placer deposits, hydrothermal veins, and contact mineralization deposits. They also occur in the mineral cooperite and in igneous rocks (Pohl, 2011).

Here is a map of all PGE deposits in the world:



(Goodfellow, 2006)

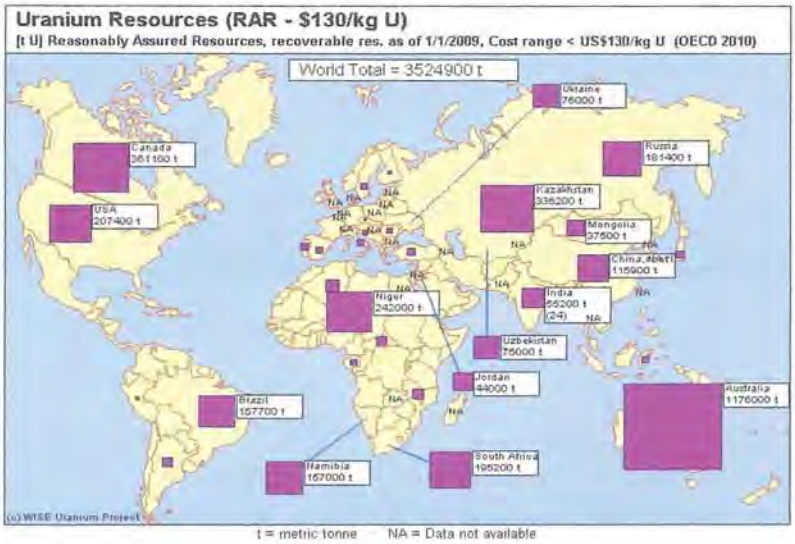
Rare Metals (In, Ga, Zr, Nb, Co, Ta, Li)

Rare metals occur in a wide variety of deposits. Indium and gallium specifically are mined in zinc ores. Additionally, economically valuable concentrations of gallium can be found in bauxite, a sedimentary rock typically mined for aluminum. (Raymond, 1995) Zirconium is found in the silicate mineral zircon as well as many other common minerals. Zirconium is also produced as a byproduct of mining the titanium minerals ilmenite and rutile. Niobium and tantalum are commonly found in the minerals pyrochlore and columbite. Cobalt is mined specifically from ores like cobaltite, but also as a byproduct of copper and nickel mining (Raymond, 1995). Lithium is found in three main types of deposits: brines, pegmatites, and sediments. Brines (concentrations of highly saline water) are mined for lithium by pumping the liquid from large brine bodies into holding ponds for evaporation into salts, which are further processed (Topinka, 2007). Pegmatites (igneous intrusions with high concentrations of incompatible elements such as REEs) (Topinka, 2007), are first isolated from the ore through flotation, and then extracted by further processing. Pegmatites are more expensive to process than brine, but typically have higher ore concentrations (0.60%). Lithium is also extracted from sedimentary rocks, including clays, which can have up to 0.7% concentrations, but this is a much less common form of deposit than brines or pegmatites (Gruber, 2011).

Uranium/Thorium

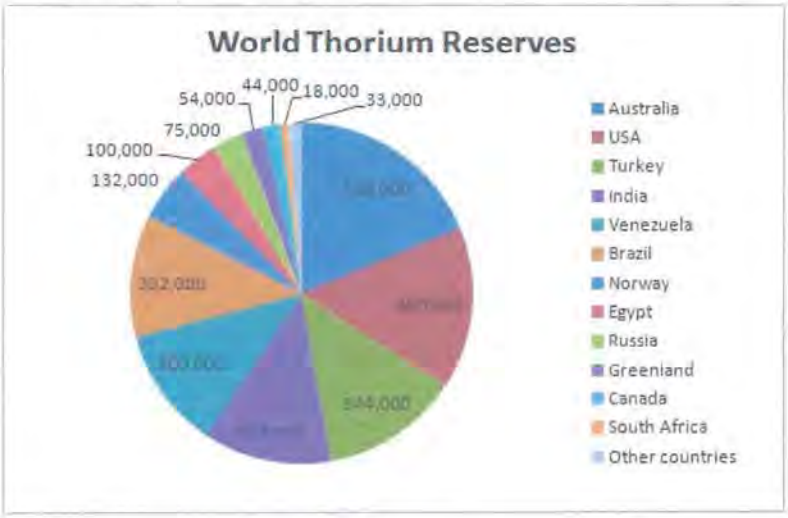
Uranium and thorium are mined primarily from two deposits types. The first deposit type is placer deposits of uranium in sandstone, which are composed of uraninite and coffinite. Sandstone roll front deposits occur where oxidixed uranium is precipitated from groundwater when it encounters reducing conditions. The second important type of uranium deposits are unconformity-associated deposits, which are found between two rock bodies were a sandstone overlies an igneous or metamorphic basement. The minerals in unconformity deposits containing uranium are uraninite and pitchblende. Other deposits include hematite-breccia complex deposits, magmatic-hydrothermal uranium in iron-oxide Cu-Au deposits and quartz-pebble conglomerate deposits (World Nuclear, 2010). Thorium is mined in conjunction with uranium, so much that estimates of reserves for these elements are made based off of uranium content. Thorium is typically found in the minerals thorite, thorianite and monazite however monazite is the only mineral from which Thorium is currently mined. These monazite deposits are found in placer deposits. India and the United States currently have the most thorium deposits in the world (Pohl, 2011).

Uranium resources in the world:



(Greenberg, 2012)

Thorium distribution in the world:



(Thorium Reactor Technology, 2012)

Global Reserve Maps

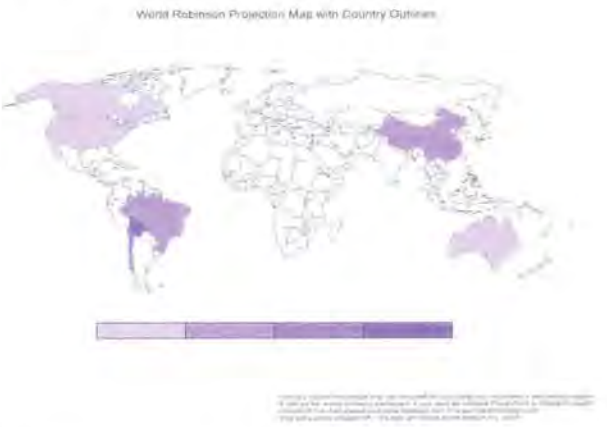
Below are several maps showing various elements and their reserve estimates. These maps indicate reserves for an entire country. However, sometimes the reserves are only located in

specific locations within a country and not distributed evenly throughout. For instance, phosphorus deposits in the US mainly come from one mining location in Florida. Reserve estimates are taken up to a certain year (usually through 2010) and may underestimate the amount of reserves in a certain location. The lightest color corresponds to fewer reserves, while the darker color corresponds to more reserves. Each element varies in scale. More detailed numbers and estimates can be found in the links below the button.

Global Reserve Map for Cerium:

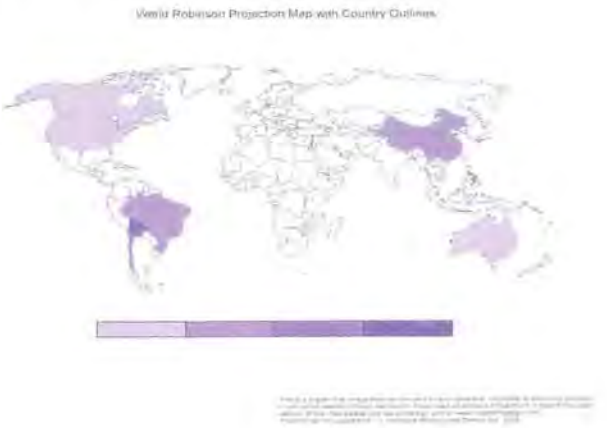
http://minerals.usgs.gov/minerals/pubs/commodity/rare_earths/740397.pdf

Global Reserve Map for Lithium:



http://minerals.usgs.gov/minerals/pubs/commodity/lithium/lithimcs07.pdf

Global Reserve Map for Niobium (Columbium):

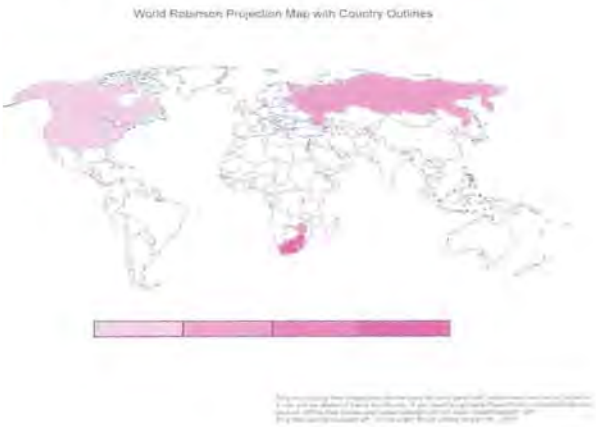


Niobium (columbium): http://minerals.usgs.gov/minerals/pubs/commodity/niobium/mcs-2012-niobi.pdf

Global Reserve Map for Phosphorus:

Phosphorus: http://web.mit.edu/12.000/www/m2016/pdf/scientificamerican0609-54.pdf

Global Reserve Map for Platinum group elements:

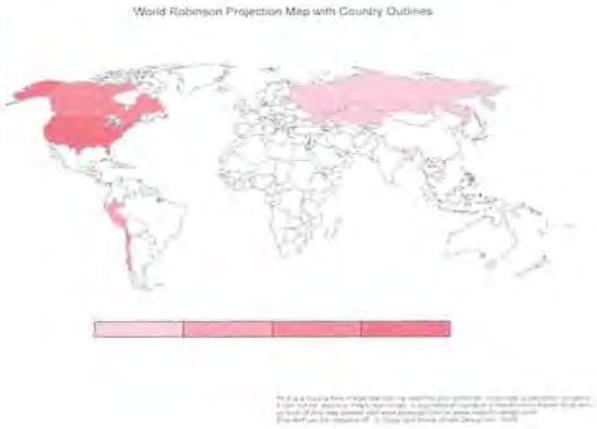


Platinum group elements: http://pubs.usgs.gov/of/2004/1224/2004-1224.pdf

Global Reserve Map for rare earth elements (REEs):

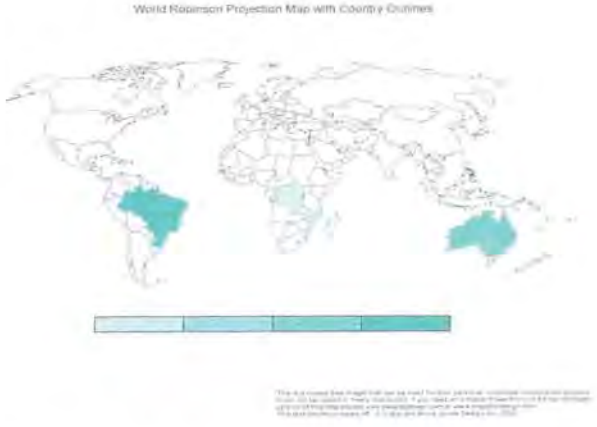
REE: http://www.fas.org/sgp/crs/natsec/R41347.pdf
http://minerals.usgs.gov/minerals/pubs/commodity/rare_earths/mcs-2011-raree.pdf

Global Reserve Map for Rhenium:



Rhenium: http://minerals.usgs.gov/minerals/pubs/commodity/rhenium/rhenimcs07.pdf

Global Reserve Map for Tantalum:

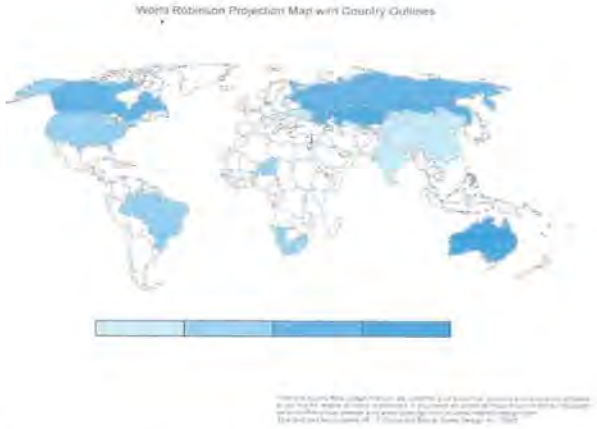


Tantalum: http://minerals.usgs.gov/minerals/pubs/commodity/niobium/mcs-2012-tanta.pdf

Global Reserve Map for Thorium:

Thorium: http://minerals.usgs.gov/minerals/pubs/commodity/thorium/690397.pdf

Global Reserve Map for Uranium:



Uranium: http://commons.wikimedia.org/wiki/File:Uranium_Reserves.png
from http://www.world-nuclear.org/info/inf75.html

Global Reserve Map for Yttrium:

Yttrium: http://minerals.usgs.gov/minerals/pubs/commodity/rare_earths/mcs-2012-yttri.pdf

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HUMANITARIAN PROJECT FUNDING PROPOSAL FOR COOPERATIVE INDUSTRIAL HEMP FIBER PRODUCTION

Thorium - Rare Earth Minerals located on the original Lemhi Valley **Exhibit B**

Lemhi Pass Mine
Developer: U.S. Rare Earths, Inc.
Location: Lemhi Pass, Idaho
Prepared February 2018

Background

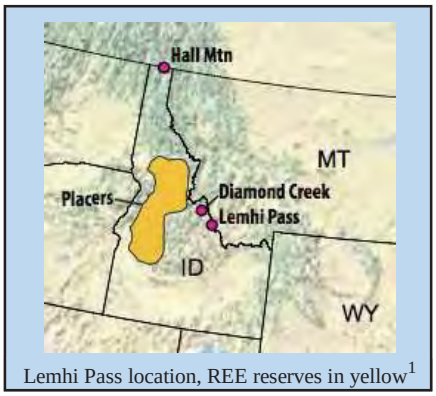
In 2008, the mineral exploration company U.S. Rare Earths, Inc. began aggressively surveying mining claims in Lemhi Pass along the Idaho-Montana border. The Texas-based company formerly known as Colorado Rare Earths, Inc sought to extract certain rare earth elements (REE) and thorium from the Pass arguing that the mine would boost the local economy while also contributing to America's resource sovereignty and helping to satisfy increasing demands from defense, energy and technology industries for rare earth elements.

Lemhi Pass is of geologic note because of the presence of highly concentrated thorium and rare earth element deposits below the surface. Lemhi Pass has one of the largest and most concentrated thorium deposits in the world with an estimated 64,000 metric tons of thorium oxide. Additionally, the geologic composition of Lemhi Pass is particularly unique because of the relatively balanced ratios between thorium and REEs. In most other REE mining projects, thorium concentrations tend to be too low for their production to be profitable (USGS, 2009).

In addition to geological interest, Lemhi Pass is of particular historic and cultural significance. First, the Pass is a part of the ancestral lands of the Shoshone-Bannock tribes. Lemhi Pass has historic and spiritual importance as it is the resting the place for their ancestors (Lemhi- Shoshone). Secondly, Lemhi Pass was a significant location during Lewis and Clark's expedition and, as the site of a National Historic Landmark, attracts large amounts of tourists.

The lifestyles of residents in the Lemhi Pass area have been defined by its unique historic and natural features. Eastern Idaho and western Montana is mostly rural and boasts distinctive natural beauty and a robust outdoor recreation economy (Lemhi County). The area also has a history of ranching, which plays a large role in the local economy. While the Lemhi Pass area has experienced mining projects in the past, thorium and REE extraction are completely new endeavors.

Despite high levels of interest and activity in and around the Pass from 2008 to 2015, the Lemhi Pass mine failed to come to fruition due to a variety of factors. Those factors will be explored in the Policy Context and Environmental Assessment and Public Response sections.



Lemhi Pass location, REE reserves in yellow[1]

Policy Context

Rare earth elements and thorium have been topics of political debate recently for many reasons. First, rare earth elements are used in numerous US military, technology, and civilian green industry applications. For example, the mineral deposits of Lemhi Pass contain significant amounts of neodymium, which is crucial in the production of wind turbines (Biello, 2010). Because of this, the demand for REEs has skyrocketed in recent years and is projected to only grow. Additionally, China currently dominates the world's supply of REEs which gives it massive political clout to control export trade. The Lemhi Pass mine would help mitigate the United States' dependence on China's rare earth resources. Finally, thorium, which is often found alongside rare earth element deposits, is a radioactive element that has tremendous advantages in energy production over uranium. Thorium is more abundant than uranium in the Earth's crust, is 200 times more potent, is cheaper, and produces less radioactive waste. Despite this, demand for thorium

in the United States is low, regulations surrounding thorium extraction are strict, and actually separating the thorium from ore and REEs is time-consuming and expensive (DeHaemer, 2014).

Lemhi Pass[2]

Environmental Assessment and Public Response

Because the Lemhi Pass mine never progressed further than the exploration stage, a public release of an Environmental Assessment through the National Environmental Protection Act (NEPA) was never necessary. However, this does not mean that the potential environmental impacts of the mine were not examined or that the public did not respond to the proposed mine. The Lemhi Pass Mine faced opposition and apprehension on a number of environmental topics.

One concern voiced by the public was that radioactive dust from the mine could potentially reach nearby grazing fields, harm cattle, and hurt the area's ranching economy. In addition, many expressed concern over the potential contamination of surface water and groundwater along with exposure to radiation. Many questioned whether U.S. Rare Earths, Inc would take necessary precautionary measures (Stewart, 2012) .

Another concern pertained to sensitive plants and wildlife in the area, namely Sage Grouse, Penstemon Lemhiensis (or "Beardtongue") and Chinook Salmon. The Sage Grouse populations of Lemhi Pass heavily rely on the vegetational composition of the area (ISGAC, 2014); Penstemon Lemhiensis is endemic to the greater Lemhi Pass region and is also designated by the Forest Service as a sensitive species (Moseley, et al. 1990); and the Chinook Salmon is an endangered species. Activity from the mine, such as construction, and potential radioactive contamination had the possibility of negatively impacting habitat and population size for all three of these species.

The Shoshone-Bannock tribes also expressed concerns about the proposed mine. As mentioned earlier, Lemhi Pass is the site of Shoshone-Bannock tribes' ancestral lands, which the tribes argued were under attack. Members of the tribes still lived at and regularly visit one of the proposed mine sites where their ancestors are buried. The tribes also cite the significance of Lewis and Clark's historic journey through the Pass and the harm the mine might bring upon the tourism economy of the area.

Despite these concerns, there are still those that recognize the economic benefits that the mine could bring to the rural area. Past mining, mainly for molybdenum, used to support the local economy more than it does today and some stakeholders wish to see a revitalization in that sector (Taggart, 2015).

Conclusion

The Lemhi Pass mine has embroiled in a classic mine-proposal debate in which jobs and the economy were pitted against human health, natural environment and culture. It is unclear how these two opposing sides may eventually reconcile with each other due to more the more powerful forces of the global economy. Currently, the Lemhi Pass mine was determined to not be a profitable endeavor and so the mine has not been built. Should global markets change, developments could begin again. This is yet another testament to the power and volatility of our global economy, which calls into question the practicality of any REE developments in the United States.

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HUMANITARIAN PROJECT FUNDING PROPOSAL FOR

COOPERATIVE INDUSTRIAL HEMP FIBER PRODUCTION

https://en.wikipedia.org/wiki/Hemp **Exhibit C**

Hemp

Hemp, or **industrial hemp** (from Old English *hænep*),[1] typically found in the northern hemisphere, is a variety of the *Cannabis sativa* plant species that is grown specifically for the industrial uses of its derived products.[2] It is one of the fastest growing plants[3] and was one of the first plants to be spun into usable fiber 10,000 years ago.[4] It can be refined into a variety of commercial items including paper, textiles, clothing, biodegradable plastics, paint, insulation, biofuel, food, and animal feed.[5][6]

Although cannabis as a drug and industrial hemp both derive from the species *Cannabis sativa* and contain the psychoactive component tetrahydrocannabinol (THC), they are distinct strains with unique phytochemical compositions and uses.[7] Hemp has lower concentrations of THC and higher concentrations of cannabidiol (CBD), which decreases or eliminates its psychoactive effects.[7] The legality of industrial hemp varies widely between countries. Some governments regulate the concentration of THC and permit only hemp that is bred with an especially low THC content.[8][9]

A hemp field in Côtes-d'Armor, Brittany, France (Europe's largest hemp producer)

Contents

Etymology

The etymology is uncertain but there appears to be no common Proto-Indo-European source for the various forms of the word; the Greek term *kánnabis* is the oldest attested form, which may have been borrowed from an earlier Scythian or Thracian word.[10][11] Then it appears to have been borrowed into Latin, and separately into Slavic and from there into Baltic, Finnish, and Germanic languages.[12] Following Grimm's law, the "k" would have changed to "h" with the first Germanic sound shift,[10][13] after which it may have been adapted into the Old English form, *hænep*. However, this theory assumes that hemp was not widely spread among different societies until after it was already being used as a psychoactive drug, which Adams and Mallory (1997) believe to be unlikely based on archaeological evidence.[10] Barber (1991) however, argued that the spread of the name "kannabis" was due to its historically more recent drug use, starting from the south, around Iran, whereas non-THC varieties of hemp are older and prehistoric.[12] Another possible source of origin is Assyrian *qunnabu*, which was the name for a source of oil, fiber, and medicine in the 1st millennium BC.[12]

Cognates of hemp in other Germanic languages include Dutch *hennep*, Danish and Norwegian *hamp*, German *Hanf*, and Swedish *hampa*.[10]

Uses

Hemp is used to make a variety of commercial and industrial products including rope, textiles, clothing, shoes, food, paper, bioplastics, insulation, and biofuel.[5] The bast fibers can be used to make textiles that are 100% hemp, but they are commonly blended with other fibers, such as flax, cotton or silk, as well as virgin and recycled polyester, to make woven fabrics for apparel and furnishings. The inner two fibers of the plant are

more woody and typically have industrial applications, such as mulch, animal bedding and litter. When oxidized (often erroneously referred to as "drying"), hemp oil from the seeds becomes solid and can be used in the manufacture of oil-based paints, in creams as a moisturizing agent, for cooking, and in plastics. Hemp seeds have been used in bird feed mix as well.[14] A survey in 2003 showed that more than 95% of hemp seed sold in the European Union was used in animal and bird feed.[15]

Hemp seed

Food

Hemp seeds can be eaten raw, ground into hemp meal, sprouted or made into dried sprout powder. Hemp seeds can also be made into a liquid and used for baking or for beverages such as hemp milk and tisanes.[16] Hemp oil is cold-pressed from the seed and is high in unsaturated fatty acids.[17] The leaves of the hemp plant, while not as nutritional as the seeds, are edible and can be consumed raw as leafy vegetables in salads, and pressed to make juice.[18]

In 2011, the U.S. imported $11.5 million worth of hemp products, mostly driven by growth in the demand for hemp seed and hemp oil for use as ingredients in foods such as granola.[19]

In the UK, the Department for Environment, Food and Rural Affairs treats hemp as a purely non-food crop, but with proper licensing and proof of less than 0.2% THC concentration, hemp seeds can be imported for sowing or for sale as a food or food ingredient.[20] In the U.S., imported hemp can be used legally in food products and, as of 2000, was typically sold in health food stores or through mail order.[17]

Hemp seed, hulled

Nutritional value per 100 g (3.5 oz)	
Energy	2,451 kJ (586 kcal)
Carbohydrates	4.67 g
Sugars	1.50 g
lactose	0.07 g
Dietary fiber	4.0 g
Fat	48.75 g
Saturated	4.600 g
Trans	0 g
Monounsaturated	5.400 g
Polyunsaturated	38.100 g
omega-3	9.301 g
omega-6	28.698 g
Protein	31.56 g
Tryptophan	0.369 g
Threonine	1.269 g
Isoleucine	1.286 g
Leucine	2.163 g
Lysine	1.276 g
Methionine	0.933 g
Cystine	0.672 g
Phenylalanine	1.447 g
Tyrosine	1.263 g
Valine	1.777 g
Arginine	4.550 g
Histidine	0.969 g
Alanine	1.528 g
Aspartic acid	3.662 g
Glutamic acid	6.269 g
Glycine	1.611 g
Proline	1.597 g

Whole hemp seeds

Hulled hemp seeds

Serine	1.713 g	
Vitamins	**Quantity**	**%DV†**
Vitamin A equiv.	1 µg	0%
beta-Carotene	7 µg	0%
Vitamin A	11 IU	
Thiamine (B_1)	1.275 mg	111%
Riboflavin (B_2)	0.285 mg	24%
Niacin (B_3)	9.200 mg	61%
Vitamin B_6	0.600 mg	46%
Folate (B_9)	110 µg	28%
Vitamin B_{12}	0 µg	0%
Vitamin C	0.5 mg	1%
Vitamin E	0.80 mg	5%
Minerals	**Quantity**	**%DV†**
Calcium	70 mg	7%
Copper	1.600 mg	80%
Iron	7.95 mg	61%
Magnesium	700 mg	197%
Manganese	7.600 mg	362%
Phosphorus	1650 mg	236%
Potassium	1200 mg	26%
Sodium	5 mg	0%
Zinc	9.90 mg	104%
Other constituents	**Quantity**	
Water	4.96 g	
Cholesterol	0 mg	

Link to Complete USDA Nutrient Database Entry (https://ndb.nal.usda.gov/ndb/foods/show/3614?fgcd=&man=&lfacet=&count=&max=&sort=&qlookup=&offset=&format=Full&new=&measureby=)

Units

µg = micrograms • mg = milligrams

IU = International units

†Percentages are roughly approximated using US recommendations for adults.

Nutrition

A 100-gram portion of hulled hemp seeds supplies 586 calories. They contain 5% water, 5% carbohydrates, 49% total fat, and 31% protein. Hemp seeds are notable in providing 64% of the Daily Value (DV) of protein per 100-gram serving.[21] Hemp seeds are a rich source of dietary fiber (20% DV), B vitamins, and the dietary minerals manganese (362% DV), phosphorus (236% DV), magnesium (197% DV), zinc (104% DV), and iron (61% DV). About 73% of the energy in hempseed is in the form of fats and essential fatty acids,[21] mainly polyunsaturated fatty acids, linoleic, oleic, and alpha-linolenic acids.[22]

Hempseed's amino acid profile is comparable to other sources of protein such as meat, milk, eggs and soy.[22] Protein digestibility-corrected amino acid scores (PDCAAS), which attempt to measure the degree to which a food for humans is a "complete protein", were 0.49–0.53 for whole hemp seed, 0.46–0.51 for hempseed meal, and 0.63–0.66 for hulled hempseed.[23]

Storage

Hemp oil oxidizes and turns rancid within a short period of time if not stored properly;[17] its shelf life is extended when it is stored in a dark airtight container and refrigerated. Both light and heat can degrade hemp oil.[24]

Fiber

Hemp fiber has been used extensively throughout history, with production climaxing soon after being introduced to the New World. For centuries, items ranging from rope, to fabrics, to industrial materials were made from hemp fiber. Hemp was also commonly used to make sail canvas. The word "canvas" is derived from the word *cannabis*.[25][26] Pure hemp has a texture similar to linen.[27] Because of its versatility for use in a variety of products, today hemp is used in a number of consumer goods, including clothing, shoes, accessories, dog collars, and home wares. For clothing, in some instances, hemp is mixed with lyocell.[28]

Hemp stem showing fibers

100% Hemp fabric

Hemp dress

Hemp dress

Hemp shorts

Hemp sack

Hemp shoes

Building material

Concrete-like blocks made with hemp and lime have been used as an insulating material for construction. Such blocks are not strong enough to be used for structural elements; they must be supported by a brick, wood, or steel frame.[29] However, hemp fibres are extremely strong and durable, and have been shown to be usable as a replacement for wood for many jobs, including creating very durable and breathable homes. The most common use of hemp lime in building is by casting the hemp and lime mix while wet around a timber frame with temporary shuttering, and tamping the mix to form a firm mass; after the removal of the temporary shuttering, the solidified hemp mix is then ready to be plastered with a lime plaster.[30]

The first example of the use of hempcrete was in 1986 in France with the renovation of the Maison de la Turquie in Nogent-sur-Seine by the innovator Charles Rasetti.[31] In the UK hemp lime was first used in 2000 for the construction of two test dwellings in Haverhill.[32] Designed by Modece Architects,[33] who pioneered hemp's use in UK construction, the hemp houses were monitored in comparison with other standard dwellings by BRE. Completed in 2009, the Renewable House is one of the most technologically advanced made from hemp-based materials.[34] The first US home made of hemp-based materials was completed in August 2010 in Asheville, North Carolina.[35]

A panellized system of hemp-lime panels for use in building construction is currently under test in a European Union-funded research collaboration led by the University of Bath. The panels are being designed to assure high-quality construction, rapid on-site erection, optimal hygrothermal performance from day one, and energy-

and resource-efficient buildings. The 36-month-long work programme aims to refine product and manufacturing protocols, produce data for certification and marketing, warranty, insurance cover, and availability of finance. It also includes the development of markets in Britain, France, and Spain.[36]

Hemp is used as an internal plaster and is a mixture of hemp hurd (shive) mixed with larger proportions of a lime-based binder. Hemp plaster has insulative qualities.[37]

Hemp fiber board

Hemp thermal insulation

Hemp interior thermal insulation blocks

Hemp acoustic ceiling insulation

Concrete block made with hemp in France

Plastic and composite materials

A mixture of fiberglass, hemp fiber, kenaf, and flax has been used since 2002 to make composite panels for automobiles.[38] The choice of which bast fiber to use is primarily based on cost and availability. Various car makers are beginning to use hemp in their cars, including Audi, BMW, Ford, GM, Chrysler, Honda, Iveco, Lotus, Mercedes, Mitsubishi, Porsche, Saturn, Volkswagen[39] and Volvo. For example, the Lotus Eco Elise[40] and the Mercedes C-Class both contain hemp (up to 20 kg in each car in the case of the latter).[41]

Hemp plastic interior of a car door

Hemp plastic automobile glove box

Hemp plastic column, automobile

Hemp composite sink basin

Paper

Hemp paper are paper varieties consisting exclusively or to a large extent from pulp obtained from fibers of industrial hemp. The products are mainly specialty papers such as cigarette paper,[42] banknotes and technical filter papers.[43] Compared to wood pulp, hemp pulp offers a four to five times longer fibre, a significantly lower lignin fraction as well as a higher tear resistance and tensile strength. However, production costs are about four times higher than for paper from wood,[44] so hemp paper could not be used for mass applications as printing, writing and packaging paper.

Jewelry

Hemp jewelry is the product of knotting hemp twine through the practice of macramé. Hemp jewellery includes bracelets, necklaces, anklets, rings, watches, and other adornments. Some jewellery features beads made from crystals, glass, stone, wood and bones. The hemp twine varies in thickness and comes in a variety of colors.

There are many different stitches used to create hemp jewellery, however, the half knot and full knot stitches are most common.

Hemp and bead jewelry

Cordage

Hemp rope

Hemp rope was used in the age of sailing ships, though the rope had to be protected by tarring, since hemp rope has a propensity for breaking from rot, as the capillary effect of the rope-woven fibers tended to hold liquid at the interior, while seeming dry from the outside.[45] Tarring was a labor-intensive process, and earned sailors the nickname "Jack Tar". Hemp rope was phased out when manila rope, which does not require tarring, became widely available. Manila is sometimes referred to as Manila hemp, but is not related to hemp; it is abacá, a species of banana.

Animal bedding

Hemp shives are the core of the stem, hemp hurds are broken parts of the core. In the EU, they are used for animal bedding (horses, for instance), or for horticultural mulch.[46] Industrial hemp is much more profitable if both fibers and shives (or even seeds) can be used.

Hemp straw animal bedding

Water and soil purification

Hemp can be used as a "mop crop" to clear impurities out of wastewater, such as sewage effluent, excessive phosphorus from chicken litter, or other unwanted substances or chemicals. Additionally, hemp is being used to clean contaminants at the Chernobyl nuclear disaster site, by way of a process which is known as phytoremediation—the process of clearing radioisotopes and a variety of other toxins from the soil, water, and air.[47]

Weed control

Hemp crops are tall, have thick foliage, and can be planted densely, and thus can be grown as a smother crop to kill tough weeds.[48] Using hemp this way can help farmers avoid the use of herbicides, gain organic certification, and gain the benefits of crop rotation. However, due to the plant's rapid and dense growth characteristics, some jurisdictions consider hemp a prohibited and noxious weed, much like Scotch Broom.[49]

The dense growth of hemp helps kill weeds, even thistle.

Biofuels

Biodiesel can be made from the oils in hemp seeds and stalks; this product is sometimes called "hempoline".[50] Alcohol fuel (ethanol or, less commonly, methanol) can be made by fermenting the whole plant.

Filtered hemp oil can be used directly to power diesel engines. In 1892, Rudolf Diesel invented the diesel engine, which he intended to power "by a variety of fuels, especially vegetable and seed oils, which earlier were used for oil lamps, i.e. the Argand lamp."[51][52][53]

Production of vehicle fuel from hemp is very small. Commercial biodiesel and biogas is typically produced from cereals, coconuts, palmseeds, and cheaper raw materials like garbage, wastewater, dead plant and animal material, animal feces and kitchen waste.[54]

Biodiesel sample

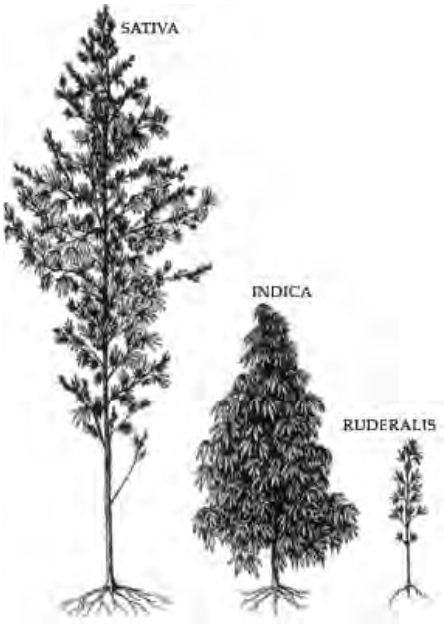
Processing

Separation of hurd and bast fiber is known as decortication. Traditionally, hemp stalks would be water-retted first before the fibers were beaten off the inner hurd by hand, a process known as scutching. As mechanical technology evolved, separating the fiber from the core was accomplished by crushing rollers and brush rollers, or by hammer-milling, wherein a mechanical hammer mechanism beats the hemp against a screen until hurd, smaller bast fibers, and dust fall through the screen. After the Marijuana Tax Act was implemented in 1938, the technology for separating the fibers from the core remained "frozen in time". Recently, new high-speed kinematic decortication has come about, capable of separating hemp into three streams; bast fiber, hurd, and green microfiber.

Only in 1997, did Ireland, parts of the Commonwealth and other countries begin to legally grow industrial hemp again. Iterations of the 1930s decorticator have been met with limited success, along with steam explosion and chemical processing known as thermomechanical pulping.

Cultivation

Hemp is usually planted between March and May in the northern hemisphere, between September and November in the southern hemisphere.[55] It matures in about three to four months.



The variety of appearances for cannabis. Only *C. sativa* (left) is suited for industrial hemp, but it also has medicinal varieties.

Millennia of selective breeding have resulted in varieties that display a wide range of traits; e.g. suited for a particular environments/latitudes, producing different ratios and compositions of terpenoids and cannabinoids (CBD, THC, CBG, CBC, CBN...etc.), fibre quality, oil/seed yield, etc. Hemp grown for fiber is planted closely, resulting in tall, slender plants with long fibers.

Use of industrial hemp plant and its cultivation was commonplace until the 1900s, when it was associated with its genetic sibling a.k.a. Drug-Type Cannabis species (which contain higher levels of psychoactive THC). Influential groups misconstrued hemp as a dangerous "drug",[56] even though it is not a 'drug' and it has the potential to be a sustainable and profitable alternative crop.[57][3]

In the United States, the public's perception of hemp as marijuana has blocked hemp from becoming a useful crop and product,"[57] in spite of its vital importance prior to World War II.[58] Ideally, according to Britain's Department for Environment, Food and Rural Affairs, the herb should be desiccated and harvested towards the end of flowering. This early cropping reduces the seed yield but improves the fiber yield and quality.[59] In these strains of industrial hemp* the tetrahydrocannabinol (THC) content would have been very low.[57]

The seeds are sown with grain drills or other conventional seeding equipment to a depth of 1.27 to 2.54 cm. Greater seeding depths result in increased weed competition. Nitrogen should not be placed with the seed, but phosphate may be tolerated. The soil should have available 89 to 135 kg/ha of nitrogen, 46 kg/ha phosphorus, 67 kg/ha potassium, and 17 kg/ha sulfur. Organic fertilizers such as manure are one of the best methods of weed control.[60]

Cultivars

In contrast to cannabis for medical use, varieties grown for fiber and seed have less than 0.3% THC and are unsuitable for producing hashish and marijuana.[61] Present in industrial hemp, cannabidiol is a major constituent among some 560 compounds found in hemp.[62]

Cannabis sativa L. subsp. *sativa* var. *sativa* is the variety grown for industrial use, while *C. sativa* subsp. *indica* generally has poor fiber quality and female buds from this variety are primarily used for recreational and medicinal purposes. The major differences between the two types of plants are the appearance, and the amount of Δ^9-tetrahydrocannabinol (THC) secreted in a resinous mixture by epidermal hairs called glandular

trichomes, although they can also be distinguished genetically.[61][63] Oilseed and fiber varieties of *Cannabis* approved for industrial hemp production produce only minute amounts of this psychoactive drug, not enough for any physical or psychological effects. Typically, hemp contains below 0.3% THC, while cultivars of *Cannabis* grown for medicinal or recreational use can contain anywhere from 2% to over 20%.[64]

Cannabis sativa stem

Hemp strains USO-xx and Zolotoniski-xx

Harvesting

Smallholder plots are usually harvested by hand. The plants are cut at 2 to 3 cm above the soil and left on the ground to dry. Mechanical harvesting is now common, using specially adapted cutter-binders or simpler cutters.

The cut hemp is laid in swathes to dry for up to four days. This was traditionally followed by *retting*, either water retting (the bundled hemp floats in water) or dew retting (the hemp remains on the ground and is affected by the moisture in dew, and by molds and bacterial action).

Harvesting industrial hemp (Cannabis sativa) - this is a separate harvest for a different form of processing: The upper part of the plant with the leaves will be collected for cold pressing, while the lower part remains for producing fiber and initially it is left on the field.

Industrial hempseed harvesting machine in France

Hemp being harvested

Location and crop rotation

For profitable hemp farming, particularly deep, humus-rich, nutrient-rich soil with controlled water flow is preferable. Waterlogged acidic, compressed or extremely light (sandy) soils primarily affect the early development of plants. Steep and high altitudes of more than 400 m above sea level are best avoided. Hemp is relatively insensitive to cold temperatures and can withstand frost down to −5 °C. Seeds can germinate down to 1–3 °C. Hemp needs a lot of heat, so earlier varieties come to maturation. The water requirement is 300–500 l/kg dry matter. This is around 1/14th that of cotton, which takes between 7,000 and 29,000 l/kg, according to WWF. Roots can grow up to 3 feet into the soil and use water from deeper soil layers.

Hemp benefits crops grown after it. So, it is generally grown before winter cereals. Advantageous changes are high weed suppression, soil loosening by the large hemp root system, and the positive effect on soil tilth. Since hemp is very self-compatible, it can also be grown several years in a row in the same fields (monoculture).

Diseases

Hemp plants can be vulnerable to various pathogens, including bacteria, fungi, nematodes, viruses and other miscellaneous pathogens. Such diseases often lead to reduced fiber quality, stunted growth, and death of the plant. These diseases rarely affect the yield of a hemp field, so hemp production is not traditionally dependent on the use of pesticides.

Environmental impact

Hemp is considered by a 1998 study in *Environmental Economics* to be environmentally friendly due to a decrease of land use and other environmental impacts, indicating a possible decrease of ecological footprint in a US context compared to typical benchmarks.[65] A 2010 study, however, that compared the production of paper specifically from hemp and eucalyptus concluded that "industrial hemp presents higher environmental impacts than eucalyptus paper"; however, the article also highlights that "there is scope for improving industrial hemp paper production".[66] Hemp is also claimed to require few pesticides and no herbicides, and it has been called a carbon negative raw material.[67][68] Results indicate that high yield of hemp may require high total nutrient levels (field plus fertilizer nutrients) similar to a high yielding wheat crop.[69]

Producers

The world-leading producer of hemp is China, which produces more than 70% of the world output. France ranks second with about a quarter of the world production. Smaller production occurs in the rest of Europe, Chile, and North Korea. Over 30 countries produce industrial hemp, including Australia, Austria, Canada, Chile, China, Denmark, Egypt, Finland, Germany, Greece,[70] Hungary, India, Italy, Japan, Korea, Netherlands, New Zealand, Poland, Portugal, Romania, Russia, Slovenia, Spain, Sweden, Switzerland, Thailand, Turkey, the United Kingdom and Ukraine.[71][72]

The United Kingdom and Germany resumed commercial production in the 1990s. British production is mostly used as bedding for horses; other uses are under development. Companies in Canada, the UK, the United States, and Germany, among many others, process hemp seed into a growing range of food products and cosmetics; many traditional growing countries still continue to produce textile-grade fibre.

Air-dried stem yields in Ontario have from 1998 and onward ranged from 2.6–14.0 tonnes of dry, retted stalks per hectare (1–5.5 t/ac) at 12% moisture. Yields in Kent County, have averaged 8.75 t/ha (3.5 t/ac). Northern Ontario crops averaged 6.1 t/ha (2.5 t/ac) in 1998. Statistic for the European Union for 2008 to 2010 say that the average yield of hemp straw has varied between 6.3 and 7.3 ton per ha.[73][74] Only a part of that is bast fiber. Around one tonne of bast fiber and 2–3 tonnes of core material can be decorticated from 3–4 tonnes of good-quality, dry-retted straw. For an annual yield of this level is it in Ontario recommended to add nitrogen (N):70–110 kg/ha, phosphate (P_2O_5): up to 80 kg/ha and potash (K_2O): 40–90 kg/ha.[75] The average yield of dry hemp stalks in Europe was 6 ton/ha (2.4 ton/ac) in 2001 and 2002.[15]

FAO argue that an optimum yield of hemp fiber is more than 2 tonnes per ha, while average yields are around 650 kg/ha.[76]

Australia

In the Australian states of Tasmania, Victoria, Queensland, New South Wales, and most recently, South Australia, the state governments have issued licences to grow hemp for industrial use. The first to initiate modern research into the potential of cannabis was the state of Tasmania, which pioneered the licensing of hemp during the early 1990s. The state of Victoria was an early adopter in 1998, and has reissued the regulation in 2008.[77]

Queensland has allowed industrial production under licence since 2002,[78] where the issuance is controlled under the Drugs Misuse Act 1986.[79] New South Wales now issues licences[80] under a law, the Hemp Industry Regulations Act 2008 (No 58), that came into effect as of 6 November 2008.[81] Most recently, South Australia legalized industrial hemp under South Australia's Industrial Hemp Act 2017, which commenced on 12 November 2017.[82]

Dried hemp stalks displayed at the International Hemp Fair in Vienna

Canada

Commercial production (including cultivation) of industrial hemp has been permitted in Canada since 1998 under licenses and authorization issued by Health Canada (9,725 ha in 2004, 5450 ha in 2009).[83]

In the early 1990s, industrial hemp agriculture in North America began with the Hemp Awareness Committee at the University of Manitoba. The Committee worked with the provincial government to get research and development assistance, and was able to obtain test plot permits from the Canadian government. Their efforts led to the legalization of industrial hemp (hemp with only minute amounts of tetrahydrocannabinol) in Canada and the first harvest in 1998.[84][85]

In 2017, the cultivated area for hemp in the Prairie provinces include Saskatchewan with more than 56,000 acres (23,000 ha), Alberta with 45,000 acres (18,000 ha), and Manitoba with 30,000 acres (12,000 ha).[86] Canadian hemp is cultivated mostly for its food value as hulled hemp seeds, hemp oils and hemp protein powders, with only a small fraction devoted to production of hemp fiber used for construction and insulation.[86]

France

France is Europe's biggest producer (and the world's second largest producer) with 8,000 hectares (20,000 acres) cultivated.[87] 70–80% of the hemp fibre produced in 2003 was used for specialty pulp for cigarette papers and technical applications. About 15% was used in the automotive sector, and 5-6% was used for insulation mats. About 95% of hurds were used as animal bedding, while almost 5% was used in the building sector.[15] In 2010/2011, a total of 11,000 hectares (27,000 acres) was cultivated with hemp in the EU, a decline compared with previous year.[74][88]

Industrial hemp production in France

A hemp maze in France

Russia and Ukraine

From the 1950s to the 1980s, the Soviet Union was the world's largest producer of hemp (3,000 square kilometres (1,200 sq mi) in 1970). The main production areas were in Ukraine,[89] the Kursk and Orel regions of Russia, and near the Polish border. Since its inception in 1931, the Hemp Breeding Department at the Institute of Bast Crops in Hlukhiv (Glukhov), Ukraine, has been one of the world's largest centers for developing new hemp varieties, focusing on improving fiber quality, per-hectare yields, and low THC content.[90][91]

After the collapse of the Soviet Union, the commercial cultivation of hemp declined sharply. However, at least an estimated 2.5 million acres of hemp grow wild in the Russian Far East and Black Sea regions.[92]

Harvesting hemp in the USSR, 1956

United Kingdom

In the United Kingdom, cultivation licences are issued by the Home Office under the Misuse of Drugs Act 1971. When grown for nondrug purposes, hemp is referred to as industrial hemp, and a common product is fibre for use in a wide variety of products, as well as the seed for nutritional aspects and for the oil. Feral hemp or ditch weed is usually a naturalized fibre or oilseed strain of *Cannabis* that has escaped from cultivation and is self-seeding.[93]

United States

Hemp was made illegal to grow without a permit in the U.S. under the Controlled Substances Act passed in 1970 because of its relation to marijuana,[19] and any imported hemp products must meet a zero tolerance level.[94] Some states have made the cultivation of industrial hemp legal, but farmers in many states have not yet begun to grow it because of resistance from the federal Drug Enforcement Administration,[95] making

"large-scale hemp growing" in the United States "not viable" as late as 2013.[96] In 2013, after the legalization of cannabis in the state, several farmers in Colorado planted and harvested several acres of hemp, bringing in the first hemp crop in the United States in over half a century.[97] Colorado,[98] Vermont, California, and North Dakota have passed laws enabling hemp licensure. All four states are waiting for permission to grow hemp from the DEA. Currently,[99] Oregon has licensed industrial hemp as of August 2009.[100] Congress included a provision in the Agricultural Act of 2014 that allowed colleges and state agencies to grow and conduct research on hemp in states where it is legal.[19] Hemp production in Kentucky, formerly the United States' leading producer, resumed in 2014.[101] Hemp production in North Carolina resumed in 2017,[102] and in Washington State the same year.[103] By the end of 2017, at least 34 U.S. states had industrial hemp programs.[104] In 2018, New York began taking strides in industrial hemp production, along with hemp research pilot programs at Cornell University, Binghamton University and SUNY Morrisville.[105]

As of 2015 the hemp industry estimated that annual sales of hemp products were around US$600 million annually; hemp seeds have been the major force driving this growth.[106]

Despite this progress, hemp businesses in the US have had difficulties expanding as they have faced challenges in traditional marketing and sales approaches. According to a case study done by *Forbes*, hemp businesses and startups have had difficulty marketing and selling non-psychoactive hemp products, as some online advertising platforms and financial institutions do not distinguish between hemp and marijuana.[107]

The Hemp Farming Act of 2018, part of the 2018 Farm Bill[108] signed by President Donald Trump December 20, 2018,[109] changed hemp from a controlled substance to an agricultural commodity, legalizing hemp federally, which made it easier for farmers to get production licenses, get loans to grow hemp, and allowed them to get federal crop insurance.[108]

History

Hemp is possibly one of the earliest plants to be cultivated.[111][112] An archeological site in the Oki Islands near Japan contained cannabis achenes from about 8000 BC, probably signifying use of the plant.[113] Hemp use archaeologically dates back to the Neolithic Age in China, with hemp fiber imprints found on Yangshao culture pottery dating from the 5th millennium BC.[110][114] The Chinese later used hemp to make clothes, shoes, ropes, and an early form of paper.[110] The classical Greek historian Herodotus (ca. 480 BC) reported that the inhabitants of Scythia would often inhale the vapors of hemp-seed smoke, both as ritual and for their own pleasurable recreation.[115]

Textile expert Elizabeth Wayland Barber summarizes the historical evidence that *Cannabis sativa*, "grew and was known in the Neolithic period all across the northern latitudes, from Europe (Germany, Switzerland, Austria, Romania, Ukraine) to East Asia (Tibet and China)," but, "textile use of Cannabis sativa does not surface for certain in the West until relatively late, namely the Iron Age."[116] "I strongly suspect, however, that what catapulted hemp to sudden fame and fortune as a cultigen and caused it to spread rapidly westwards in the first millennium B.C. was the spread of the habit of pot-smoking from somewhere in south-central Asia, where the drug-bearing variety of the plant originally occurred. The linguistic evidence strongly supports this theory, both as to time and direction of spread and as to cause."[117]

Jews living in Palestine in the 2nd century were familiar with the cultivation of hemp, as witnessed by a reference to it in the Mishna (*Kil'ayim* 2:5) as a variety of plant, along with Arum, that sometimes takes as many as three years to grow from a seedling. In late medieval Germany and Italy, hemp was employed in cooked dishes, as filling in pies and tortes, or boiled in a soup.[118] Hemp in later Europe was mainly cultivated for its fibers, and was used for ropes on many ships, including those of Christopher Columbus. The use of hemp as a cloth was centered largely in the countryside, with higher quality textiles being available in the towns.

The Spaniards brought hemp to the Americas and cultivated it in Chile starting about 1545.[119] Similar attempts were made in Peru, Colombia, and Mexico, but only in Chile did the crop find success.[120] In July 1605, Samuel Champlain reported the use of grass and hemp clothing by the (Wampanoag) people of Cape Cod and the (Nauset) people of Plymouth Bay told him they harvested hemp in their region where it grew wild to a height of 4 to 5 ft. [121] In May 1607, "hempe" was among the crops Gabriel Archer observed being cultivated by the natives at the main Powhatan village, where Richmond, Virginia is now situated;[122] and in 1613, Samuell Argall reported wild hemp "better than that in England" growing along the shores of the upper Potomac. As early as 1619, the first Virginia House of Burgesses passed an Act requiring all planters in Virginia to sow "both English and Indian" hemp on their plantations.[123] The Puritans are first known to have cultivated hemp in New England in 1645.[119]

Yangshao culture (ca. 4800 BC) amphora with impressed hemp cord design

Radical 200 (麻 or *má*), the Chinese character for hemp, depicts two plants under a shelter. The use of hemp in Taiwan dates back at least 10,000 years.[110]

United States

George Washington pushed for the growth of hemp and even grew hemp himself, as it was a cash crop commonly used to make rope and fabric. In May 1765 he noted in his diary about the sowing of seeds each day until mid-April. Then he recounts the harvest in October which he grew 27 bushels that year.

There is some speculation that George Washington smoked the flower of the cannabis plant in order to achieve a recreational high ("Like all farmers, Washington probably sampled the quality and potency of what he grew, and he may have used this hemp to treat his chronic tooth aches"),[58] but there is no evidence in any of his writings that he grew hemp for anything other than industrial purposes. It is sometimes supposed that an excerpt from Washington's diary, which reads "Began to seperate [*sic*] the Male from the Female hemp at Do.&—rather too late" is evidence that he was trying to grow female plants for the THC found in the flowers. However, the editorial remark accompanying the diary states that "This may arise

from their [the male] being coarser, and the stalks larger"[124] In subsequent days, he describes soaking the hemp[125] (to make the fibers usable) and harvesting the seeds,[126] suggesting that he was growing hemp for industrial purposes, not recreational.

George Washington also imported the Indian Hemp plant from Asia, which was used for fiber and, by some growers, for intoxicating resin production. In a letter to William Pearce who managed the plants for him Washington says, "What was done with the Indian Hemp plant from last summer? It ought, all of it, to be sown again; that not only a stock of seed sufficient for my own purposes might have been raised, but to have disseminated seed to others; as it is more valuable than common hemp."

Cannabis sativa from *Vienna Dioscurides*, 512 AD.

Additional presidents known to have farmed hemp include Thomas Jefferson,[127] James Madison, James Monroe, Andrew Jackson, Zachary Taylor, and Franklin Pierce. [128]

Historically, hemp production had made up a significant portion of antebellum Kentucky's economy. Before the American Civil War, many slaves worked on plantations producing hemp.[129]

In 1937, the Marihuana Tax Act of 1937 was passed in the United States, levying a tax on anyone who dealt commercially in cannabis, hemp, or marijuana. The passing of the Act to destroy the US hemp industry has been disputed to involve businessmen Andrew Mellon, Randolph Hearst and the Du Pont family.[130][131][132]

One claim is that Hearst believed that his extensive timber holdings were threatened by the invention of the decorticator which he feared would allow hemp to become a cheap substitute for the paper pulp used for newspaper.[130][133] Historical research indicates this fear was unfounded because improvements of the decorticators in the 1930s – machines that separated the fibers from the hemp stem – could not make hemp fiber a cheaper substitute for fibers from other sources. Further, decorticators did not perform satisfactorily in commercial production.[134][130]

Another claim is that Mellon, Secretary of the Treasury and the wealthiest man in America at that time, had invested heavily in DuPont's new synthetic fiber, nylon, and believed that the replacement of the traditional resource, hemp, was integral to the new product's success.[130][135][136][137][138][139][140][141] The company DuPont and many industrial historians dispute a link between nylon and hemp, nylon became immediately a scarce commodity. Nylon had characteristics that could be used for toothbrushes (sold from 1938) and very thin nylon fiber could compete with silk and rayon in various textiles normally not produced from hemp fiber, such as very thin stockings for women.[134][142][143][144][145]

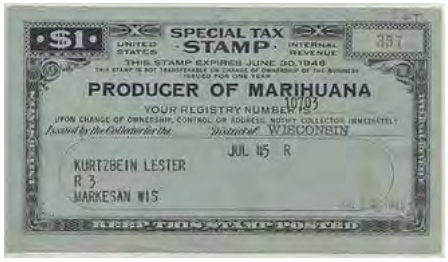
Hemp was used extensively by the United States during World War II to make uniforms, canvas, and rope.[146] Much of the hemp used was cultivated in Kentucky and the Midwest. During World War II, the U.S. produced a short 1942 film, *Hemp for Victory*, promoting hemp as a necessary crop to win the war.

History in the United States

Hemp for Victory, a short documentary produced by the United States Department of Agriculture during World War II

1942 United States Department of Agriculture War Board Letter of appreciation to Joe "Daddy Burt" Burton, a Kentucky hemp farmer for his support of the World War II Hemp for Victory campaign.[147]

Joe "Daddy Burt" Burton, a recognized top Kentucky hemp farmer with harvested hemp, 1942. Photo by USDA War Board - Lexington, KY[148]



United States "Marihuana" production permit. In the United States, hemp cultivation is legally prohibited, but during World War II farmers were encouraged to grow hemp for cordage, to replace Manila hemp previously obtained from Japanese-controlled areas. The U.S. government produced a film explaining the uses of hemp, called *Hemp for Victory*.

Historical cultivation

Hemp has been grown for millennia in Asia and the Middle East for its fibre. Commercial production of hemp in the West took off in the eighteenth century, but was grown in the sixteenth century in eastern England.[149] Because of colonial and naval expansion of the era, economies needed large quantities of hemp for rope and

oakum. In the early 1940s, world production of hemp fiber ranged from 250 000 to 350 000 metric tonnes, Russia was the biggest producer.[134]

In Western Europe, the cultivation of hemp was not legally banned by the 1930s, but the commercial cultivation stopped by then, due to decreased demand compared to increasingly popular artificial fibers.[150] Speculation about the potential for commercial cultivation of hemp in large quantities has been criticized due to successful competition from other fibers for many products. The world production of hemp fiber fell from over 300,000 metric tons 1961 to about 75,000 metric tons in the early 1990s and has after that been stable at that level.[151]

Japan


Japanese Shinto shrine with rope made of hemp

In Japan, hemp was historically used as paper and a fiber crop. There is archaeological evidence cannabis was used for clothing and the seeds were eaten in Japan back to the Jōmon period (10,000 to 300 BC). Many Kimono designs portray hemp, or *asa* (Japanese: 麻), as a beautiful plant. In 1948, marijuana was restricted as a narcotic drug. The ban on marijuana imposed by the United States authorities was alien to Japanese culture, as the drug had never been widely used in Japan before. Though these laws against marijuana are some of the world's strictest, allowing five years imprisonment for possession of the drug, they exempt hemp growers, whose crop is used to make robes for Buddhist monks and loincloths for Sumo wrestlers. Because marijuana use in Japan has doubled in the past decade, these exemptions have recently been called into question.[152]

Portugal

The cultivation of hemp in Portuguese lands began around the fourteenth century onwards, it was raw material for the preparation of rope and plugs for the Portuguese ships. Colonies for factories for the production of flax hemp, such as the Royal Flax Hemp Factory in Brazil.

After the Restoration of Independence in 1640, in order to recover the ailing Portuguese naval fleet, were encouraged its cultivation as the Royal Decree of D. John IV in 1656. At that time its cultivation was carried out in Trás-os-Montes, Zone Tower Moncorvo, more precisely in Vilariça Valley, fertile land for any crop irrigation, and a very large area, flat and very fertile culture still wide until the last century grew up tobacco, a plant that needs a large space to expand and grow, the area lies in the valley of Serra de Bornes.

In 1971, the cultivation of hemp became illegal, and the production was substantially reduced. Because of EU regulations 1308/70, 619/71 and 1164/89, this law was revoked (for some certified seed varieties).[153]

See also

- Cannabis flower essential oil
- Fiber rope
- Hemp Industries Association

- Industrial Hemp Farming Act of 2009
- International Year of Natural Fibres
- Natural fibre
- Plant textiles
- *The Emperor Wears No Clothes* (book)
- Flax seed

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HUMANITARIAN PROJECT FUNDING PROPOSAL FOR COOPERATIVE INDUSTRIAL HEMP FIBER PRODUCTION

https://www.businessinsider.com/farm-bill-legalizes-hemp-boom- **Exhibit D**

Trump signs Farm Bill and legalizes hemp, cannabidiol

Brett Kelman and Andrew Sharp, Nashville Tennessean Published 12:46 p.m. ET Dec. 21, 2018 | **Updated 1:10 p.m. ET Dec. 21, 2018**

(Photo: Kristen Wyatt, AP)

President Donald Trump signed Congress' omnibus Farm Bill into law on Thursday, legalizing hemp at the federal level. (/story/news/2018/10/02/cbd-hemp-marijuana-nashville-first-southern-hemp-expo/1410018002/)

The new law will make it possible to buy crop insurance for hemp, erasing some of the risk for farmers who want to expand into the new market, and allowing hemp to be moved across state lines, expanding options for exports and sales.

Hemp, which is closely related to marijuana but has no psychoactive effect, has been classified as a controlled substance under federal law for decades. The Farm Bill removes this designation and reclassifies hemp (https://www.marketwatch.com/story/cbd-and-hemp-are-now-legal-in-the-us-so-what-does-that-mean-for-pot-companies-2018-12-20) as an agricultural product, legally distancing hemp from pot, which is still illegal to grow in most states.

The door is now open for commercial growing of hemp in Delaware, which did not have a law against it — the holdup was at the federal level.

Gov. John Carney signed a bill in August (https://legis.delaware.gov/BillDetail/26962) that added hemp to the definition of grain and allowed the Department of Agriculture to adopt any policies necessary to allow industrial cultivation once it was permitted by federal law.

Trump called the Farm Bill a "tremendous victory for the American farmer" during a signing ceremony. He praised the Farm Bill as a rare bipartisan victory, then congratulated Democratic lawmakers who he said had contributed heavily to the bill.

"I'll probably have to deny that someday, but I won't do that because you worked really, really hard," Trump said.

Hemp law reforms were never directly mentioned during the signing ceremony.

Hemp can either be grown as fiber, generally used to make clothing, rope and building materials, or to be harvested for its cannabidiol, or CBD, which is advertised as having broad but often unverified health benefits.

It grows more vigorously than corn, according to Modern Farmer (https://modernfarmer.com/2018/07/so-you-want-to-be-a-hemp-farmer/) magazine, but doesn't need as much water, fertilizer or spraying.

The magazine noted "hempcrete," an alternative building material, "sequesters more carbon from the atmosphere than the carbon emissions required to produce it."

Jordan Ford, left, Danny Ford, and his son Lee Ford look for any plant problems between cutting weeds between rows of hemp at their farm in South Carolina. *(Photo: Ken Ruinard/ Staff)*

The passage of the Farm Bill is also expected to have ramifications in the sale of CBD products, which until now has had to largely survive without common financial infrastructures like bank loans and credit card services, said attorney Jonathan Miller, an expert on hemp law in Kentucky.

Miller said that most banks and credit card companies have avoided the industry altogether because the legal status of hemp has been in flux for years. Large retailers like Wal-Mart and Target have also waited on the sidelines, interested in selling hemp products but unwilling to take the risk, he said.

“Everybody who has been in the industry before now has taken a risk, and frankly, I think it’s proven to be a wise risk. But this Farm Bill, more than anything, takes away that risk … There is no longer going to the specter of the DEA coming in and arresting people.”

According to a 2017 Cornell University study cited by Modern Farmer, hemp profits ranged from about $130 to $730 per acre (http://ccetompkins.org/resources/industrial-hemp-from-seed-to-market), which would make it a lower-end grain crop.

Brett Kelman is the health care reporter for The Tennessean. He can be reached at 615-259-8287 or at brett.kelman@tennessean.com. Follow him on Twitter at @brettkelman.

DELAWARE ONLINE

Pa. governor calls for 'serious' look at legalizing recreational marijuana (/story/news/2018/12/20/pa-governor-calls-serious-look-legalizing-recreational-marijuana/2373591002/)

This Delaware 'farmette' helped feed America while the men fought in WWII (/story/news/2018/11/08/when-men-fought-wwii-farmette-helped-feed-america/1889854002/)

Read or Share this story: https://www.delawareonline.com/story/news/2018/12/21/hemp-cbd-farm-bill-signing-trump-delaware-agriculture/2387656002/

HUMANITARIAN PROJECT FUNDING PROPOSAL FOR COOPERATIVE INDUSTRIAL HEMP FIBER PRODUCTION

PAC Bank / ACRA / start-up funding / compliance participation **Exhibit E**

NEW YORK STATE
DEPARTMENT *of*
FINANCIAL SERVICES

Andrew M. Cuomo
Governor

Maria T. Vullo
Superintendent

May 19, 2017

Christopher Earl Strunk, Esq.
C/O 315 Flatbush Avenue PMB 102
Brooklyn, NY 11217-2813

Dear Mr. Strunk:

Re: Establishment of the APNAC Private Bank

We are in receipt of your letter, dated May 16, 2017, requesting to engage in business as a private banker. As discussed in our telephone conversation of today's date, pursuant to New York Banking Law Section 160, an individual or partnership desiring to engage in business as a private banker shall submit to the Superintendent of Financial Services, a verified certificate in duplicate which shall state:

1. The full name, residence and post office address of such individual or of each member of such partnership.
2. The state or country of which each individual named in such certificate is a citizen.
3. The amount of permanent capital such individual or partnership will invest in his business as a private banker which shall be not less than one million dollars.
4. The place where the office is to be located.

We are unable to waive the minimum one million dollar permanent capital requirement. Additional information is required in order for the Superintendent of Financial Services to issue an authorization certificate. Should you desire to pursue the matter further, you may contact me at 212-709-1549 to arrange a pre-application meeting. I am available to be contacted between the hours of 8:30 to 4:30.

Please be advised, pursuant to New York Banking Law Sections 18-a and 23, a non-refundable application fee in the amount of $12,500.00, payable to the "Superintendent of Financial Services," is required.

Very truly yours,

Gerald J. Stein
Senior Bank Examiner

NEW YORK STATE
DEPARTMENT of FINANCIAL SERVICES
ONE STATE STREET
NEW YORK, NY 10004-1511

Christopher Earl Strunk, Esq.
C/O 315 Flatbush Avenue PMB 102
Brooklyn, NY 11217-2813

Christopher Earl Strunk
c/o 315 Flatbush Avenue PMB 102
Brooklyn, New York 11217-2813
718-414-3760

Maria T. Vullo, Superintendent
New York State Department of Financial Services
One State Street
New York, NY 10004-1511

Subject: Establish the APNAC New York Banking Law Article IV Private Bank

The Honorable Superintendent of Financial Services,

Undersigned is the Executor for the *ASSOCIATION OF PRIVATE NATIONAL AMERICAN CITIZENS FOR THESE UNITED STATES OF AMERICA* (APNAC), an exclusive unincorporated association presently with less than 20 members as of right under New York CVR - Civil Rights Article 5-A - (53 - 57) for *MEMBERSHIP CORPORATIONS AND UNINCORPORATED ASSOCIATIONS*. Regarding the above subject, we contend that the only hope for private local development here in New York and the several States will happen using funds exclusively raised offshore, separate from domestic sources, repatriated through the Euroclear system; and that New York is the best place to establish a private bank to serve APNAC members exclusively for national and international purposes.

We are concerned that severe restrictions imposed over the last 10 years upon private investment for inventions and local development, previously done with domestic funds controlled by Depository Trust & Clearing Corporation member banks and securities transactions, may be reversed by operation of a New York Banking Law Article IV Private Bank based upon the Trump administration promise to ease restrictions for repatriation of offshore funds pending action by Congress. We wish to be prepared to repatriate private funds for members accordingly.

We will need at least two accounts for APNAC without the million dollar startup restriction:

- For offshore securities and or repatriated funds to be raised and invested for members only; and
- For a Members only fee based operations including service fees for each project development.

Christopher Earl Strunk in esse Sui juris Executor for APNAC

State of New York)
} ss.
County of Kings)

christopher Strunk

BEFORE ME, on this day personally appeared Christopher Earl Strunk, known to me to be the person described herein and who solemnly affirmed under the penalties of perjury that every statement given above was the whole truth to the best of his knowledge.

Subscribed and Affirmed before me on this 16th day of May, 2017.

ZEMIN WU
NOTARY PUBLIC-STATE OF NEW YORK
No. 01WU6228541
Qualified in Queens County
My Commission Expires September 20, 2018

Notary Public

Certification

STATE OF NEW YORK, COUNTY OF KINGS, SS:

I, Nancy T. Sunshine, County Clerk and Clerk of Supreme Court Kings County,

do hereby certify that on September 17, 2018 I have compared

the document attached hereto,

9/17/2018 PRIVATE AMERICAN CITIZEN INVESTMENT COMPANY 239773 page(s) 1-2.

with the originals filed in my office and the same is a correct transcript

therefrom and of the whole of such original in witness

whereto I have affixed my signature and seal.

Nancy T Sunshine

NANCY T. SUNSHINE
KINGS COUNTY CLERK

Business Certificate

I HEREBY CERTIFY *that I am conducting or transacting business under the name or designation*

of PRNATE AMERICAN CITIZEN INVESTMENT COMPANY

at 315 FLATBUSH AVENUE PMB 102 ZIP CODE 11217

City or Town of BROOKLYN *County of* KINGS *State of New York.*

My full name is CHRISTOPHER EARL STRUNK

Print or type name. If under 21 years of age, state "I am ..... years of age".

and I reside at 141 HARRIS AVENUE LAKE LUZERNE NY 12846

I FURTHER CERTIFY *that I am the successor in interest to*

PRIVATE AMERICAN CITIZEN DOT ORGANIZATION

the person or persons heretofore using such name or names to carry on or conduct or transact business.

Type of business INVESTMENT COMPANY *(see next page)*

IN WITNESS WHEREOF, *I have signed this certificate on* 17 AUGUST 2018

AUTHORIZED REPRESENTATIVE

STATE OF NEW YORK, COUNTY OF KINGS ss.:

On 9/17/2018 before me, the undersigned, personally appeared CHRISTOPHER STRUNK personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

(signature and office of person taking acknowledgment)

Notary Stamp

KAMAL P SONI
Notary Public, State of New York
No. 01SO6089949
Qualified in Kings County
Commission Expires March 31, 2019

State of New York
County of **ss.:**

On before me, the undersigned,
personally appeared

personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

(signature and office of individual taking acknowledgment)

State of
County of **ss.:**

On before me, the undersigned,
personally appeared

personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

(signature and office of individual taking acknowledgment)

INDEX No.

Certificate

of

CHRISTOPHER EARL STRUNK

CONDUCTING BUSINESS UNDER
THE NAME OF

PRIVATE AMERICAN CITIZEN INVESTMENT COMPANY

GBL §130.4. A certified copy of the original certificate, or if an amended certificate has been filed, then of the most recent amended certificate filed shall be conspicuously displayed on the premises at each place in which the business for which the same was filed is conducted.

Some counties request the type of business.

Consultant Services
Educational Services
Entertainment–Recreation
Finance–Insurance Services
Home Improvement Services
Medical—Home Care Services
Professional—Technical Services
Real Estate Services
Retail Trade
Wholesale Trade

Other (state type)
INVESTMENT COMPANY

KINGS COUNTY CLERK
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2018 SEP 17 AM 11:37

ACCEPTED FORM TYPE ID-NEWCIK (9999999996-18-036291)

Thu, Sep 20, 2018 10:20 am

From: edgar-postmaster@sec.gov

To: chris@privateamericancitizen.org

THE FOLLOWING SUBMISSION HAS BEEN ACCEPTED BY THE U.S. SECURITIES AND EXCHANGE COMMISSION.

COMPANY: CHRISTOPHER EARL STRUNK dba PRIVATE AMERICAN CITIZEN INVESTMENT CO
FORM TYPE: ID-NEWCIK NUMBER OF DOCUMENTS: 3
RECEIVED DATE: 19-Sep-2018 16:35 ACCEPTED DATE: 20-Sep-2018 10:18
TEST FILING: NO CONFIRMING COPY: NO

ACCESSION NUMBER: 9999999996-18-036291

PLEASE REFER TO THE ACCESSION NUMBER LISTED ABOVE FOR FUTURE INQUIRIES.

REGISTRANT(S):

1. CIK: 0001753713
   COMPANY: CHRISTOPHER EARL STRUNK dba PRIVATE AMERICAN CITIZEN INVESTMENT CO
   FORM TYPE: ID-NEWCIK

SUMMARY OF CHANGES:

Your application for access to EDGAR has been accepted. Your CIK is 0001753713. Please connect to the EDGAR Filer Management URL
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X

IRS DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

Date of this notice: 01-02-2015

Employer Identification Number:
47-6702521

Form: SS-4

Number of this notice: CP 575 B

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB OF THIS NOTICE.

000916.521948.337664.16005 1 MB 0.435 530

CHRISTOPHER EARL STRUNK
CHRISTOPHER EARL STRUNK TTEE
593 VANDERBILT AVE PMB 281
BROOKLYN NY 11238

000916

WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

Thank you for applying for an Employer Identification Number (EIN). We assigned you EIN 47-6702521. This EIN will identify your estate or trust. If you are not the applicant, please contact the individual who is handling the estate or trust for you. Please keep this notice in your permanent records.

When filing tax documents, payments, and related correspondence, it is very important that you use your EIN and complete name and address exactly as shown above. Any variation may cause a delay in processing, result in incorrect information in your account, or even cause you to be assigned more than one EIN. If the information is not correct as shown above, please make the correction using the attached tear-off stub and return it to us.

Based on the information received from you or your representative, you must file the following form(s) by the date(s) shown.

Form 1041 04/15/2015

If you have questions about the form(s) or the due dates(s) shown, you can call us at the phone number or write to us at the address shown at the top of this notice. If you need help in determining your annual accounting period (tax year), see Publication 538, Accounting Periods and Methods.

We assigned you a tax classification based on information obtained from you or your representative. It is not a legal determination of your tax classification and is not binding on the IRS. If you want a legal determination of your tax classification, you may request a private letter ruling from the IRS under the guidelines in Revenue Procedure 2004-1, 2004-1 I.R.B. 1 (or superseding Revenue Procedure for the year at issue). Note: Certain tax classification elections can be requested by filing Form 8832, Entity Classification Election. See Form 8832 and its instructions for additional information.

To obtain tax forms and publications, including those referenced in this notice, visit our Web site at www.irs.gov. If you do not have access to the Internet, call 1-800-829-3676 (TTY/TDD 1-800-829-4059) or visit your local IRS office.

IMPORTANT REMINDERS:

* Keep a copy of this notice in your permanent records. This notice is issued only one time and IRS will not be able to generate a duplicate copy for you. You may give a copy of this document to anyone asking for proof of your EIN.

* Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.

* Refer to this EIN on your tax-related correspondence and documents.

* Provide future officers of your organization with a copy of this notice.

Your name control associated with this EIN is CHRI. You will need to provide this information, along with your EIN, if you file your returns electronically.

If you have questions about your EIN, you can call us at the phone number or write to us at the address shown at the top of this notice. If you write, please tear off the stub at the bottom of this notice and send it along with your letter. If you do not need to write us, do not complete and return this stub. Thank you for your cooperation.

Form 8822B "Change of Address or Responsible Party - Business" affirmed 12 July 2017

Form **8822-B**
(Rev. October 2014)
Department of the Treasury
Internal Revenue Service

Change of Address or Responsible Party — Business

► Please type or print.
► See instructions on back. ► Do not attach this form to your return.
► Information about Form 8822-B is available at *www.irs.gov/form8822b*.

OMB No. 1545-1163

Before you begin: If you are also changing your home address, use Form 8822 to report that change.

If you are a tax-exempt organization (see instructions), check here ☐

Check **all** boxes this change affects:

1 ☑ Employment, excise, income, and other business returns (Forms 720, 940, 941, 990, 1041, 1065, 1120, etc.)

2 ☐ Employee plan returns (Forms 5500, 5500-EZ, etc.)

3 ☐ Business location

4a Business name	4b Employer identification number
CHRISTOPHER EARL STRUNK, New York Registered Organization see File No. 47-03766	130368096

5 **Old mailing address** (no., street, room or suite no., city or town, state, and ZIP code). If a P.O. box, see instructions. If foreign address, also complete spaces below, see instructions.

281 Vanderbilt Avenue Brooklyn NY 11238

Foreign country name	Foreign province/county	Foreign postal code
N/A	N/A	N/A

6 **New mailing address** (no., street, room or suite no., city or town, state, and ZIP code). If a P.O. box, see instructions. If foreign address, also complete spaces below, see instructions.

141 Harris Avenue Lake Luzerne NY 12846

Foreign country name	Foreign province/county	Foreign postal code
N/A	N/A	N/A

7 **New business location** (no., street, room or suite no., city or town, state, and ZIP code). If a foreign address, also complete spaces below, see instructions.

315 Flatbush Avenue PMB 102 Brooklyn NY 11217

Foreign country name	Foreign province/county	Foreign postal code
N/A	N/A	N/A

8 **New responsible party's name**

christopher earl strunk, Private American National Non "U.S. Citizen" See attached

9 **New responsible party's SSN, ITIN, or EIN**

47-6702521

10 **Signature**

Daytime telephone number of person to contact (optional) ► 718-414-3760

Sign Here

Christopher E Strunk — 01/12/2017

Signature of owner, officer, or representative — Date

Agent of Record; Grantor-Settlor/Benficiary of the Name and Estate of CHRISTOPHER EARL STRUNK

Title

Where To File

Send this form to the address shown here that applies to you.

IF your old business address was in . . .	THEN use this address . . .
Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, Wisconsin	Internal Revenue Service Cincinnati, OH 45999-0023
Alabama, Alaska, Arizona, Arkansas, California, Colorado, Hawaii, Idaho, Iowa, Kansas, Louisiana, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wyoming, any place outside the United States	Internal Revenue Service Ogden, UT 84201-0023

For Privacy Act and Paperwork Reduction Act Notice, see back of form. Cat. No. 57465H Form **8822-B** (Rev. 10-2014)

Certification

STATE OF NEW YORK, COUNTY OF KINGS, SS:

I, Nancy T. Sunshine, County Clerk and Clerk of Supreme Court Kings County, do hereby certify that on September 17, 2018 I have compared the document attached hereto,

9/17/2018 PRIVATE AMERICAN CITIZEN 239772 page(s) 1-2.

with the originals filed in my office and the same is a correct transcript therefrom and of the whole of such original in witness whereto I have affixed my signature and seal.

Nancy T Sunshine

NANCY T. SUNSHINE
KINGS COUNTY CLERK

Business Certificate

I HEREBY CERTIFY *that I am conducting or transacting business under the name or designation*

of PRIVATE AMERICAN CITIZEN

at % 315 FLATBUSH AVENUE PMB 102 ZIPCODE 11217

City or Town of BROOKLYN *County of* KINGS *State of New York.*

My full name is CHRISTOPHER EARL STRUNK

Print or type name. If under 21 years of age, state "I am ..... years of age".

and I reside at 141 HARRIS AVENUE LAKE LUZERNE NY 12846

I FURTHER CERTIFY *that I am the successor in interest to*

PRIVATE AMERICAN CITIZEN DOT ORGANIZATION

the person or persons heretofore using such name or names to carry on or conduct or transact business.

Type of business MEMBER ASSOCIATION *(see next page)*

IN WITNESS WHEREOF, *I have signed this certificate on* 17 AUGUST 2018

AUTHORIZED REPRESENTATIVE

STATE OF NEW YORK, COUNTY OF KINGS
ss.:

On 9/17/2018 before me, the undersigned, personally appeared CHRISTOPHER STRUNK personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

(signature and office of person taking acknowledgment)

Notary Stamp

KAMAL P SONI
Notary Public, State of New York
No. 01SO6089949
Qualified in Kings County
Commission Expires March 31, 2019

State of New York
County of **ss.:**

On before me, the undersigned,
personally appeared

personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

(signature and office of individual taking acknowledgment)

State of
County of **ss.:**

On before me, the undersigned,
personally appeared

personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

(signature and office of individual taking acknowledgment)

INDEX No.

Certificate

of

CHRISTOPHER EARL STRUNK

CONDUCTING BUSINESS UNDER
THE NAME OF

PRIVATE AMERICAN CITIZEN

GBL §130.4. A certified copy of the original certificate, or if an amended certificate has been filed, then of the most recent amended certificate filed shall be conspicuously displayed on the premises at each place in which the business for which the same was filed is conducted.

Some counties request the type of business.

Consultant Services	Medical—Home Care Services
Educational Services	Professional—Technical Services
Entertainment–Recreation	Real Estate Services
Finance–Insurance Services	Retail Trade
Home Improvement Services	Wholesale Trade

Other (state type)

MEMBER ASSOCIATION

KINGS COUNTY CLERK
FILED
2018 SEP 17 AM 11:37

Landing page ABOUT PRIVATE AMERICAN CITIZEN

This is a joint statement by Christopher Earl: Strunk, in esse sui juris, and Eric Jon: Phelps, in esse sui juris, on our intended effective use of this Website titled *"PRIVATE AMERICAN CITIZEN"* with the universal purpose to build and maintain an informed cooperative association for each United States of America Constitution's 14th Amendment Private National American Citizen, a **Non-"U.S. citizen"** per se**,** whose birth or naturalization and residence Status as the living, natural human being, non-surety for a state or federally-created quasi-corporate organization, is free to contract and act in commerce as the sole beneficiary of his or her Estate Trust.

Members must be previously certified (will be credited upon presentment of Status Documents) or be duly certified and registered with the Secretary of Treasury (SOT) and Commander-in-Chief (CINC) whose authority is over the present military government's agencies that currently function under the Congressional *Emergency Banking Relief Act* [(1)] by application of the 1917 *Trading with the Enemy Act* [(2)] brought inland with the Franklin Delano Roosevelt (FDR) PROCLAMATION 2040 on 9 March 1933 **(3)** said temporary national banking emergency / state of war having been anticipated by the 1908 *Aldrich-Vreeland Act* **(4)** in conjunction with the 1927 *McFadden Act* **(5)** making the Federal Reserve Charter perpetual, absent actual fraud, purposed to finance foreign wars; and,

Further, that when the prospective applicant understands the intent and purpose of this Website he / she may register by pressing on the picture of Andrew Jackson below to enter into a bilateral contract with individual compliance responsibilities to become a future member / associate in cooperation with an elected board of directors who administer compliance with a reasonable annual fee based member Status certification with annual equity due under the laws of the State of New York and related law as apply; and,

Further, we jointly intend that the registrant and subsequent applicant agrees in good faith to facilitate their use of this Website to complete the five (5) incremental fee-based stages of registration, Instruction with subsections, Application with subsections, Filing with subsections not to exceed a $100 fee each, not including printing, filing and

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[1] The **Emergency Banking Act** (the official title of which was the **Emergency Banking Relief Act**), Public Law 1, 48 Stat. 1 (March 9, 1933), was an **act** passed by the United States Congress in March 1933 in an attempt to stabilize the **banking** system.

[2] The **Trading with the Enemy Act** (TWEA) of **1917** (40 Stat. 411, enacted 6 October **1917**, codified at 12 U.S.C. §§ 95a–95b and 50 U.S.C. App. §§ 1–44) is a United States federal law to restrict **trade** with countries hostile to the United States.

[3] **Presidential Emergency Powers: The current So-Called "War Powers Act of 1933"** see *congressionalresearch.com/95-753/document.php* Roosevelt's proclamation of national emergency has been effectively ... basis of this expansive statutory authority, the President in Proclamation No. 2040

[4] The **Aldrich–Vreeland Act** was passed in response to the Panic of 1907 and established the National Monetary Commission, which recommended the Federal Reserve **Act** of 1913.

[5] The **McFadden Act** is a United States federal law, named after Louis Thomas **McFadden**, member of the United States House of Representatives and Chairman of the United States House Committee on Banking and Currency, enacted in **1927** from recommendations made by former Comptroller of the Currency Henry May Dawes.

postal expenses to become a certified cooperative member in compliance at each stage; and,

Further, that initial registration shown at the image of Andrew Jackson is an acknowledgment that we need to enable restoration of the non-military, limited, civilian national government created by the Constitution for the United States of America, a limited REPUBLIC, whose each State of the several sovereign States inures to **We the People**, and who are only those "Pre-March 9, 1933" Private National American Citizens of the United States of America . . . Versus . . . the present temporary MILITARY EMPIRE of 12 USC §95a with 50 USC App. §5(b) (CHAPTER 53) under Proclamation 2040 declaring a national banking emergency / state of war using each "U.S. Citizen" Surety Indenture to hypothecate Debt for the emergency(ies), and that a registrant voluntarily acts to cease being the Surety Indenture by public filings according to law and keeps with provisions of the English *AV1611 King James Version of Bible*, specifically **Proverbs 11:15**.

Further, as neither Undersigned is an attorney, and there is no offer of legal advice per se other than to expect an applicant to read and understand provisions of instruction and testing in good faith, the very fact(s) or act(s) cited within apply to each individual particular circumstance that may in all probability vary accordingly; and,

Furthemore, we jointly intend that this Website be publicly available to all "U.S. Citizen" Surety Indentures under State / Federal law and the Uniform Commercial Code. However, because of the confidential nature of material presented as each stage must be kept secure, there is limited access only to those registered applicants or qualified members and that first-time entry registration requires a one-time $20 fee payment by Paypal to obtain an individual password to be used for every subsequent re-entry.

Christopher E Strunk 6/17/2018

Christopher Earl: Strunk, Director
c/o 315 Flatbush Avenue PMB 102
Brooklyn, New York
ZIP Code Excepted *[11217]*

Eric Jon: Phelps 6/21/2018

Eric Jon: Phelps, Director
203 South Fort Zellers Road
Newmanstown, Pennsylvania
ZIP Code Excepted *[17073]*

PAC (Private American Citizen) Warning terms for User and understands

- PAC does not keep any personal information on this server. Your pass word and user name are kept on a different server in an encrypted file. PAC does not have access to your password.
- PAC is not responsible for typos or errors during registration. Please ensure all data is entered correctly before submitting it.
- User MUST enter a correct email for registration to be activated.
- User MUST check his spam folder if he/she does not see the verification email in his/her main folder.
- All credit/bank/debit card transactions are handled on a secure PAYPAL server by PAYPAL and they are responsible for those transactions.
- User agrees to pay PAYPAL the transaction fees associated with any payment.
- PAC does not keep any of your financial information, nor do we have access to it.
- User agrees by registering that all information accessed by him/her is to be kept strictly confidential in accordance to all applicable laws of New York State or other related laws.
- PAC makes nor promises or guarantees on success of outcomes. User is wholly and solely responsible through their efforts for success or failure.
- All fees are non refundable.

Confidentiality agreement

Each Registrant seeking to apply for release of suretyship and rescission must provide a color PDF back and front of the COLB, Drivers License or picture ID, name change order if any, marriage license and or Divorce decree if any. **Registrant must maintain control and keep all original documents**.

Further, each Registrant seeking to apply for commercial status after becoming a non-surety must provide a back and front color PDF of Social Security Card, passport if any, a DD-214 certificate, copy of UCC-1 if any, list of personal property, Trust paperwork if any. All correspondence and PDF records shall be kept secure and confidential by all parties and not be destroyed or deleted until only after due acknowledgement of notice.

NYS Depa
Division
Entity

The information contained in thi

Selected Entity Name: AMERIC

Selected E	
Current Entity Name:	AMERI
DOS ID #:	15027
Initial DOS Filing Date:	SEPTE
County:	KINGS
Jurisdiction:	NEW Y
Entity Type:	DOME
Current Entity Status:	ACTIV

Selected En

DOS Process (Address to which DOS

AMERICAN COOPERATIVE RELI
315 FLATBUSH AVENUE PMB 102
BROOKLYN, NEW YORK, 11217

Registered Agent

AMERICAN COOPERATIVE RELIEF ASSOCIATION

This is a joint statement by Christopher Earl: Strunk, in esse sui juris, and Eric Jon: Phelps, in esse sui juris, the duly appointed Directors for the effective use of the AMERICAN COOPERATIVE RELIEF ASSOCIATION (ACRA), a New York State non-profit Cooperative Corporation of good standing filed on 27 September 1880 under https://www.nysenate.gov/legislation/laws/CCO, with an amended County location to 141 Harris Avenue PO BOX 34 Lake Luzerne, New York 12822 in Warren County with Christopher Earl Strunk as the Registered Agent, see NYS SOS filing **Exhibit A**, and accordingly based upon the *Syracuse Post and Standard* advertised Special Meeting held on 23 August 2018 in the Main Brooklyn Public Library at Grand Army Plaza, Christopher Earl Strunk (CES) and Eric Jon Phelps (EJP) were duly appointed as the ACRA Directors by the *Private American Citizen* attendees.

Conditions for ACRA Membership and Privileges:

- ACRA requires membership in the privateamericancitizen.org (PAC) with $20 one time fee
- ACRA requires at least a 90% passing score of the privateamericancitizen.org TEST for $60 and you decide whether or not you have the proper knowledge
- ACRA will Credit prior filing of Commercial and or Non-surety / Rescission Status **OR**
- PAC Members must file Commercial Non-surety / Rescission Status as provided through the privateameicancitizen.org; and then for privileges PAC Members must also
- Enroll in the AMERICAN COOPERATIVE RELIEF ASSOCIATION at the ACRA page after PAC filing with an initial $120 fee and then for $10 per month thereafter**.**
- ACRA Members may hypothecate notes for Agricultural related 10 year loans according to New York State Cooperative Law see https://www.nysenate.gov/legislation/laws/CCO
- Only ACRA Members may contract recorded debt obligation(s) discharge with the ASSOCIATION PRIVATE NATIONAL AMERICAN CITIZENS (APNAC) D.B.A. filed in Kings County by its directors Eric Jon Phelps and Christopher Earl Strunk (see **Exhibit B**);
- The APNAC unincorporated D.B.A., Association of Private National American Citizens (APNAC) shown in Exhibit B, seeks to obtain a Private Bank License from the State of New York that will only serve ACRA members (see **Exhibit C**).
- APNAC Directors Eric Jon Phelps and Christopher Earl Strunk as the sole associates will underwrite and file for discharge of ACRA Member's recorded debt obligation(s) for a fee of 10% of the discharge amount plus expenses incurred, and 10% fee Member Note secured by contract for confidentiality and non-disclosure uses quit claim deed on property discharged.

ACRA Non-surety / Rescission Status non voting Members: share in annual equity distribution after expense / reserve requirements, may hypothecate 10 year loans for agricultural purposes once the New York State APNAC Private bank is licensed and upon membership may discharge debts through the D.B.A. APNAC, whose Directors / Patrons CES and EJP presently act in anticipation of the New York State licensed APNAC Private Bank audit each transaction.

ACRA Commercial Non-surety / Rescission Status voting Members: share in annual equity distribution after expense / reserve requirements, may hypothecate 10 year loans for agricultural purposes once the New York State APNAC Private bank is licensed and upon membership may discharge debts through the D.B.A. APNAC, whose Directors / Patrons CES and EJP presently act in anticipation of the

New York State licensed APNAC Private Bank audit each transaction; members vote on by-law amendments and transaction requirements effecting the Cooperative.

ACRA Patron Commercial Non-surety / Rescission Status voting Members: share in annual equity distribution after expense / reserve requirements, may hypothecate 10 year loans for agricultural purposes once the New York State APNAC Private bank is licensed and upon ACRA membership may discharge recorded debts through the D.B.A. APNAC, whose Directors / Patrons CES and EJP presently act in anticipation of the New York State licensed APNAC Private Bank periodic audit of each transaction and in anticipation of the licensed Private Bank we have obtained interest of an experienced forensic accountant as a fellow Trustee that will for a fee assist in underwriting each transaction for members of the association per se; and further, each Patron may vote on by-law amendments and transaction requirements along with other members effecting the Cooperative; and furthermore, only 19 Patrons may serve as Associates of the APNAC Private Bank pending licensing by the State of New York.

That both ACRA and APNAC until further amended notice filed with the New York Secretary of State will operate out of Warren County New York and when appropriate will also seek an off street private office rental with secure storage; and further, will continue to receive correspondence at CHRISTOPHER EARL STRUNK 141 Harris Avenue PO BOX 34 Lake Luzerne, NY 12846; and furthermore, APNAC shall now operate as described above as a Kings County filed D.B.A. with CES and EJP as Directors.

_____

Christopher Earl: Strunk, Director
c/o 141 Harris Avenue PO BOX 34
Lake Luzerne, New York
ZIP Code Excepted *[12846]*
chris@privateamericancitizen.org

VERIFICATION AND ACKNOWLEDGMENT:

UNITED STATES OF AMERICA)
STATE OF NEW YORK) SS
COUNTY OF WARREN)

BEFORE ME, on this day personally appeared Christopher Earl: Strunk known to me to be the person described herein Joint Statement of Christopher Earl Strunk and Eric Jon Phelps for the AMERICAN COOPERATIVE RELIEF ASSOCIATION and doing business as the ASSOCIATION of PRIVATE NATIONAL AMERICAN CITIZENS and who solemnly affirmed under the penalties of perjury that every statement given above was the whole truth to the best of his knowledge.

Subscribed and Affirmed before me on this _____day of

_____, 2019

_____
Notary Public

_____

Eric Jon: Phelps, Director
203 South Fort Zellers Road
Newmanstown, Pennsylvania
ZIP Code Excepted *[17073]*
eric@privateamericancitizen.org

VERIFICATION AND ACKNOWLEDGMENT:

UNITED STATES OF AMERICA)
COMMONWEALTH OF PENNSYLVANIA) SS
COUNTY OF LEBANON)

BEFORE ME, on this day personally appeared Eric Jon: Phelps known to me to be the person described herein Joint Statement of Christopher Earl Strunk and Eric Jon Phelps for the AMERICAN COOPERATIVE RELIEF ASSOCIATION and doing business as the ASSOCIATION of PRIVATE NATIONAL AMERICAN CITIZENS and who solemnly affirmed under the penalties of perjury that every statement given above was the whole truth to the best of his knowledge.

Subscribed and Affirmed before me on this _____day of

_____, 2019

_____
Notary Public

HUMANITARIAN PROJECT FUNDING PROPOSAL FOR COOPERATIVE INDUSTRIAL HEMP FIBER PRODUCTION

venerable State of New York Cooperative Law ... **Exhibit F**

Mailing Address / Counter Hours:
Albany
New York State, Department of State
Division of Corporations, State Records
and Uniform Commercial Code
99 Washington Avenue 6th floor
Albany, NY 12231

Customer Service Counter Hours: 9:00 a.m -4:30 p.m.

Director: J. Thomas Falcon

Email

Telephone Inquiries:
Monday through Friday: 8:30 a.m. to 4:30 p.m.
Deaf, hearing impaired, and speech-disabled callers, please use 7-1-1
(518) 473-2492

Fax Numbers:

- **Information Unit:** (518) 473-1654
  Searches, Certificates of Status and Copy Requests
- **Document Review Unit:** (518) 474-1418
- **Administration/Legal:** (518) 474-5173
- **State Records:** (518) 473-0730
- **Uniform Commercial Code:** (518) 474-4478
- **Statement Unit:** (518) 486-4680

Cooperative Corporations https://www.nysenate.gov/legislation/laws/CCO
Consolidated Laws of New York

Article 1

Short Title; Policy; Definitions

Section 1 Short title
Cooperative Corporations (CCO)

Section 1. Short title. This chapter shall be known as the "cooperative corporations law."

Sections (§§) 1 - 5
Section 2 Declaration of policy
Cooperative Corporations (CCO)

It is the declared policy of this state, as one means of improving the economic welfare of its people, particularly those who are producers, marketers or consumers of food products, to encourage their effective organization in cooperative associations for the rendering of mutual help and service.

Section 3 Definitions https://www.nysenate.gov/legislation/laws/CCO/3
Cooperative Corporations (CCO)

(a) The term "agricultural product" means any product of cultivating land, and includes floricultural, horticultural, viticultural, forestry, nut, dairy, livestock, poultry, bee and any farm products or by-products thereof.

(b) The terms "feed," "food," and "food products" mean any substance capable of human, animal or poultry consumption, including all articles of drink, confectionery or condiment, whether simple, mixed or compound, and all substances or ingredients added to food for any purpose.

(c) The terms "cooperative," "cooperative association" and "cooperative corporation" mean a corporation organized under this chapter, or heretofore organized under any special or general law of this state, for the cooperative rendering of mutual help and service to its members. A cooperative shall be either a general cooperative, a membership cooperative, an agricultural cooperative as defined in article six of this chapter or a worker cooperative as defined in section eighty-one of this chapter.

(d) A cooperative corporation shall be classed as a non-profit corporation, since its primary object is not to make profits for itself as such, or to pay dividends on invested capital, but to provide service and means whereby its members may have the economic advantage of cooperative action, including a reasonable and fair return for their product and service.

(e) The term "member" means the holder of a membership in a cooperative, whether evidenced by a certificate of membership or by a certificate of stock or by other authorized means of identification. The term includes a member association or corporation as provided in this chapter.

(f) The term "person" includes an individual, a partnership, a corporation, an association, or two or more individuals acting together.

(g) The term "net margins" or "net retained proceeds" means the amount by which the undistributed receipts from operations exceed the expenses thereof.

(h) The term "patron" refers to persons, partnerships, associations and corporations who transact business with the cooperative either as producers or purchasers, whether members or not.

(i) A cooperative corporation does not include any corporation which is formed or may be formed under the banking law, the insurance law, the railroad law or the transportation corporations law. Except as otherwise expressly provided in this chapter, no cooperative corporation shall do any business for which a corporation may be formed under any such law; but the lawful operations of a cooperative credit corporation as authorized in this chapter shall not be deemed banking or violation of any provisions of law as to banking.

(j) The term "cooperative," "cooperation" or any abbreviation, variation or similitude thereof, shall not be used as or in a name except by a corporation defined in this chapter. Any cooperative corporation may sue for an injunction against such prohibited use of the term. A violation of this prohibition is a misdemeanor, punishable by a fine of not more than five hundred dollars.

(k) A membership cooperative is a non-stock cooperative which admits only natural persons to membership, which provides services only to its members and which makes no distribution of net retained proceeds other than to its members on the basis of their patronage.

(l) The terms "buying, selling or leasing homes for its members" and "conducting housing" shall include but not be limited to, the purposes and uses of residential facilities for the mentally disabled licensed by the office of mental health or the office of mental retardation and developmental disabilities.

Section 4 Applicability
Cooperative Corporations (CCO)

This chapter applies to (a) every corporation heretofore or hereafter formed under this chapter, or under any other general statute or special act of this state, which would, if it were to be formed currently under the laws of this state, be formed under this chapter, and (b) every corporation formed under laws other than the statutes of this state to the extent provided in section five and section seventy-six of this chapter.

Section 5 Applicability of business corporation law to cooperative corporations
Cooperative Corporations (CCO)

Applicability of business corporation law to cooperative corporations. 1. The business corporation law applies to every corporation heretofore or hereafter formed under this chapter, or under any other statute or special act of this state, or under laws other than the statutes of this state, which has as its purpose or among its purposes the cooperative rendering of mutual help and service to its members and which, if formed under laws other than the statutes of this state, would, if it were to be formed currently under the laws of this state, be formed under this chapter except a membership cooperative as defined in section three of this chapter, to which the not-for-profit corporation law shall apply. Any corporation to which the business corporation law is made applicable by this section shall be treated as a "corporation," "domestic corporation," or "foreign corporation," as such terms are used in the business corporation law; provided, however, that neither the purposes for which any such corporation may be formed under this chapter nor its classification as a non-profit corporation shall thereby be extended or affected. Any corporation to which the not-for-profit corporation law is made applicable by this section shall be a type D not-for-profit corporation.

(a) If any provision of the business corporation law conflicts with any provision of this chapter, the provision

of this chapter shall prevail, and the conflicting provision of the business corporation law shall not apply in such case. If any provision of this chapter relates to a matter embraced in the business corporation law but is not in conflict therewith, both provisions shall apply.

(b) The following provisions of the business corporation law shall not apply to cooperative corporations: section two hundred one (a), section four hundred three, the final clause of section five hundred one (a) which reads "and no limitation or definition of dividend or liquidation rights shall be effective unless at the time one or more classes of outstanding shares, singly or in the aggregate, are entitled to unlimited dividend and liquidation rights", section five hundred five, section five hundred eighteen (c), section six hundred eight (a) and (b), section six hundred nine, section six hundred fourteen (a), section six hundred eighteen, section six hundred twenty-one, section six hundred twenty-two, section six hundred thirty (a) (except as provided in section forty-seven of this chapter), section seven hundred three (a), section seven hundred four, and section eight hundred three (a).

(c) In applying the business corporation law to non-stock cooperative corporations, unless the context requires otherwise, the terms "shareholder" and "holder of shares" shall mean "member," and the terms "shareholders" and "holders of shares" shall mean "members".

(d) In applying the business corporation law to corporations subject to this chapter, unless the context requires otherwise, references to the holders of a stated percentage or fraction of "all outstanding shares," "all outstanding shares entitled to vote thereon," "the shares entitled to vote," and "the outstanding shares, whether or not entitled to vote," shall mean the stated percentage or fraction of the members or delegates present and voting; provided, however, that this paragraph shall not apply to shares of stock not evidencing membership.

2. For the purpose of this section and elsewhere in this chapter, the effective date of the business corporation law shall be September first, nineteen hundred sixty-seven.

3. Sections five hundred eight and five hundred fifteen of the not-for-profit corporation law notwithstanding, a membership cooperative shall be permitted to distribute any portion or all of its net retained proceeds to its members pro rata on the basis of their patronage.

Article 2

Formation and Dissolution of Cooperative Corporations; Classes; Powers; By-laws

Sections (§§) 10 - 18
Article 2 Formation and Dissolution of Cooperative Corporations; Classes; Powers; By-laws
Cooperative Corporations (CCO)

Section 10

Classes of corporations

Section 11

Five or more persons may form a corporation, under this chapter, by making, acknowledging and filing a certificate of incorporation which...

Section 12

Amendments to certificate of incorporation

Section 13

Purposes for which general cooperative corporations may be formed

Section 14

General powers

Section 15

Filing certificate

Section 16

By-laws

Section 17

Voluntary dissolution

Section 18

Jurisdiction of the supreme court

Section 12 Amendments to certificate of incorporation https://www.nysenate.gov/legislation/laws/CCO/12
Cooperative Corporations (CCO)

The certificate of incorporation of any cooperative corporation may be amended as approved by the affirmative vote of two-thirds of the members voting thereon at any regular or special meeting, or, if the corporation permits its members to vote on the basis of patronage, by the affirmative vote of a majority of the members and of two-thirds of the patronage, voting thereon, provided that the certificate as amended be authorized by the provisions of this chapter applicable to such corporation. A written or printed notice of the proposed amendment and of the time and place of the meeting to vote thereon shall be delivered to each member, or mailed to his last known address as shown by the books of the corporation, or published in a periodical issued by the corporation and mailed to all members, at least twenty days prior to any such meeting. If the amendment adversely affects the preferential rights of any outstanding shares, any holder of such shares not voting in favor of such change may

object to it at or before such meeting by filing his written objection with the secretary of the corporation and demanding payment for his shares of stock at their fair value as provided in section six hundred twenty-three of the business corporation law. No amendment affecting the preferential rights of any member or class of members, or any shareholder or class of shareholders, as set forth in the certificate of incorporation, shall be adopted until the written consent of the holders of two-thirds of such preferential rights has been obtained and filed with the corporation. In the case of a cooperative corporation which has adopted the delegate plan of voting at a convention, the vote to be taken as provided herein may be taken at a convention meeting and the required vote shall be two-thirds of the delegates present and voting. The amended certificate shall be subscribed and acknowledged by the president or a vice-president and the secretary or an assistant secretary, who shall annex an affidavit stating that they have been authorized to execute and file such certificate by the votes required by this section and in the manner herein prescribed.

Section 13 Purposes for which general cooperative corporations may be formed
https://www.nysenate.gov/legislation/laws/CCO/13
Cooperative Corporations (CCO)

Purposes for which general cooperative corporations may be formed. A cooperative corporation may be created under this chapter primarily for mutual help, not conducted for profit, for the purposes of assisting its members, including other cooperatives with which it is affiliated, by performing services connected with the purchase, financing, production, manufacture, warehousing, cultivating, harvesting, preservation, drying, processing, cleansing, canning, blending, packing, grading, storing, handling, utilization, shipping, marketing, merchandising, selling, financing or otherwise disposing of the agricultural and food products of its members or of any by-products thereof, including livestock waste or other organic agricultural wastes and the capture of methane and other gases for the generation and use or sale of energy, as defined in section 1-103 of the energy law, or connected with the acquisition for its members of labor, supplies and articles of common use, including livestock, equipment, machinery, food products, family or other household and personal supplies, to be used or consumed by the members, their families or guests, or for carrying on any other household operation or educational work in home economics and cooperation by or for its members, or for buying, selling or leasing homes or farms for its members, or building or conducting housing or eating places cooperatively, or for furnishing medical expense indemnity, dental expense indemnity, or hospital services to persons who become subscribers under contracts with such corporations in the manner provided in article forty-three of the insurance law, or for the purpose of organizing agency or credit corporations as provided in article seven of this chapter, but a corporation so organized as a credit corporation shall not have power to engage in any other activities. A certificate of incorporation, which includes the purpose of carrying on educational work, shall have attached

thereto the consent of the commissioner of education. A worker cooperative may be formed for any lawful business purpose and may be conducted for profit.

Section 14 General powers
Cooperative Corporations (CCO)

In addition to the powers and rights set out in the business corporation law or, in the case of a membership cooperative, the not-for-profit corporation law and subject thereto and subject to the provisions of this chapter, a cooperative corporation shall have the following additional specific powers to be exercised for the furtherance of its lawful purposes and business:

(a) To define or limit its activities as set forth in its certificate of incorporation or in its by-laws.

(b) To handle the products of non-members, except that, in the case of a producers' cooperative corporation, such non-member products handled in any year must not exceed the total of similar products handled for its own members.

(c) To make advance payments or loans to members.

(d) To act as the agent or representative of any member, including other cooperatives with which it is affiliated in any of the activities of the member or other cooperative.

(e) To acquire, own, sell, transfer or pledge shares of capital stock or bonds or other securities of any corporation or association engaged in any directly related activity or in the warehousing, handling or marketing of any of the products handled by the corporation.

(f) To establish reserves, and to invest the funds thereof in bonds or in such other property as may be provided in the by-laws.

(g) To establish, secure, own and develop patents, trademarks and copyrights.

(h) To set forth in its certificate of incorporation, by-laws or member contracts the number, qualifications, classifications, obligations and relative rights of its members; and general rules as to the property and funds of the corporation, the property rights, voting rights and interests of members and of its several classes of members, the admission of new members, the resignation or removal of members, the transfer, suspension, termination, forfeiture, retirement and purchase of membership and membership certificates (including shares of stocks), the

methods thereof, the distribution to members, the making of contracts with its members and with others, the holding of meetings and elections, the establishment of voting districts, and the election of delegates to represent the members in such districts or to represent affiliated corporations or associations.

(i) To adopt and amend by-laws, consistent with law and the certificate of incorporation, including emergency by-laws made pursuant to subdivision seventeen of section twelve of the state defense emergency act, relative to the foregoing subjects, the conduct and management of the affairs of the corporation, the calling and conduct of meetings, the amount of stock or the number or proportion of members or delegates which must be represented at meetings of the shareholders, members or delegates to constitute a quorum, the manner of voting, the election, appointment, removal, powers, duties, terms and compensation of its officers, directors and committees, and the fixing of procedures and liabilities in case of violations of the by-laws or of the obligations of members, officers or directors.

(j) To become a member of any other cooperative corporation with such rights, powers and representations as may be prescribed in the certificate of incorporation or the by-laws of the latter corporation.

(k) To act as agent for a non-member in the performance of such services as are permitted under this chapter for its members.

(l) To enter into all proper contracts and agreements with any other cooperative corporation for the cooperative and more economical carrying on of its business or any portion thereof, or for the employment of common facilities or agencies.

(m) To act as an agency for, or subsidiary of, any other cooperative corporation or corporations.

(n) To act as a holding corporation for the properties of any other cooperative corporation or corporations.

(o) To borrow money and contract debts, when necessary for the exercise of its corporate rights and purposes; to issue and dispose of its obligations for any amount so borrowed; and to pledge its property and franchises to secure the payment of its debts.

(p) To limit the amount of indebtedness which may be incurred by it or on its behalf.

(q) To possess and exercise all powers, rights and privileges, including the acquisition of real property,

necessary, suitable or incidental to the purposes or activities for which the corporation is organized or in which it is engaged.

Article 3

Members and Meetings

Sections (§§) 40 - 47

Article 4

Directors, Officers and Employees

Sections (§§) 60 - 65

Article 5

Miscellaneous Provisions

Sections (§§) 70 - 77

Section 77 Annual license fee

Cooperative Corporations (CCO)

1. Each cooperative corporation organized, with or without capital stock, for the purpose of cooperative marketing of agricultural products or for the purpose of making loans to its members producing agricultural products or for the purpose of purchasing food products for sale to its members, such a purchasing cooperative corporation having gross receipts from such sales of less than five hundred thousand dollars in a calendar year, shall pay to the commissioner of taxation and finance an annual fee of ten dollars, in lieu of all franchise or license or corporation taxes.

2. Each cooperative corporation organized without capital stock, with federal internal revenue code section 501(c)12 status, for the purpose of producing and/or distributing district heating and/or cooling service solely for the use of its members where: (a) the heating or cooling facility of such cooperative corporation is located in a city with a population of more than two hundred thousand and less than three hundred thousand and (b) either (i) at least thirty-five percent of such heating and/or cooling service as measured by relative thermal usage is distributed to and used by members which qualify as organizations described in paragraph one, two or four of subdivision (a) of section eleven hundred sixteen of the tax law, or which qualify as cooperative corporations organized without capital stock with federal internal revenue code section 501(c)12 status, or (ii) is a member of a cooperative corporation organized without capital stock which satisfies the requirements of clause (a) and item (i) of clause (b) of this subdivision shall pay to the commissioner of taxation and finance an annual fee of ten dollars, in lieu of all franchise, license or corporation taxes, or the tax imposed under section one hundred

eighty-six-a of the tax law.

3. Such annual fee shall be paid for each calendar year on the fifteenth day of March next succeeding the close of such calendar year.

Article 5-A

Worker Cooperative Corporations

Sections (§§) 80 - 94

Cooperative Corporations (CCO)

Any credit corporation organized under this chapter may make loans to members of a cooperative corporation owning in whole or in part the stock of the credit corporation; and no loans shall be otherwise made. No loans shall be made for more than ten years; nor for other than the agricultural, dairy, or horticultural purposes of the borrower. In all cases, there shall be a written statement by the borrower in the note, collateral agreement or signed application to the effect that the loan will be used only for such purposes; and such statement may be relied upon by the credit corporation. The credit corporation may discount or pledge such note with a federal intermediate credit bank, or other banks or banking institutions, with its guaranty or endorsement, if required.

A credit corporation may invest its capital funds in bonds or obligations of the United States or of any state or municipality, or such other bonds as are authorized for investment by a savings bank or in federal intermediate

credit bank obligations, and may deposit or hypothecate such securities with a federal intermediate credit bank, or other banks or banking institutions, as security for notes discounted by it.

Article 8

Repeals and Savings Clauses

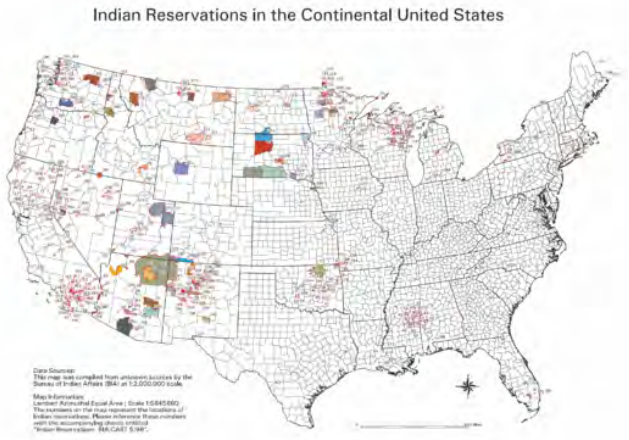
Sections (§§) 130 - 134

HUMANITARIAN PROJECT FUNDING PROPOSAL FOR COOPERATIVE INDUSTRIAL HEMP FIBER PRODUCTION

List of Indian Reservations / Colonies in the United States ... **Exhibit G**

List of Indian reservations in the United States

This is a list of Indian reservations and other tribal homelands in the United States. In Canada, the Indian reserve is a similar institution.



A Bureau of Indian Affairs map of Indian reservations in the contiguous United States.

Contents

Federally-Recognized Reservations

Most of the tribal land base in the United States was set aside by the federal government as **Native American Reservations**. In California, about half of its reservations are called Rancherías. In New Mexico, most reservations are called Pueblos. In some western states, notably Nevada, there are Native American areas called Indian Colonies.

Of the 3,796,742 square miles comprising the United States, the following reservations total 49,933 square miles, or roughly 1.3% of the total area.

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]			Includes ORTL?[1]
			Land	Water	Total	
Acoma Pueblo	NM	3,011	595.49 (1,542.32)	0.17 (0.43)	595.66 (1,542.74)	yes
Agua Caliente Indian Reservation	CA	24,781	53.32 (138.090)	0.36 (0.94)	53.68 (139.04)	yes
Alabama-Coushatta Reservation	TX	608	12.50 (32.38)	0.032 (0.084)	12.54 (32.47)	yes
Allegany Reservation	NY	6,490	40.89 (105.90)	7.62 (19.74)	48.51 (125.64)	no
Alturas Indian Rancheria	CA	0	0.039 (0.10)	0	0.039 (0.10)	no
Annette Island Reserve	AK	1,460	132.80 (343.95)	82.48 (213.61)	215.28 (557.56)	no
Aroostook Band of Micmac Trust Land	ME	197	1.64 (4.24)	0	1.64 (4.24)	no
Auburn Rancheria	CA	0	1.77 (4.58)	0	1.77 (4.58)	yes
Augustine Reservation	CA	0	0.88 (2.27)	0	0.88 (2.27)	no
Bad River Reservation	WI	1,479	192.78 (499.30)	3.86 (10.00)	196.64 (509.29)	no
Barona Reservation	CA	640	9.31 (24.12)	0	9.31 (24.12)	no
Battle Mountain Reservation	NV	148	1.05 (2.73)	0	1.05 (2.73)	no
Bay Mills Reservation	MI	1,014	5.41 (14.02)	0.11 (0.29)	5.53 (14.31)	yes
Benton Paiute Reservation	CA	76	0.57 (1.47)	0	0.57 (1.47)	yes
Berry Creek Rancheria	CA	152	0.17 (0.44)	0	0.17 (0.44)	yes
Big Bend Rancheria	CA	9	0.069 (0.18)	0	0.069 (0.18)	no
Big Cypress Reservation	FL	591	82.15 (212.78)	0.22 (0.58)	82.38 (213.36)	no
Big Lagoon Rancheria	CA	17	0.0081 (0.021)	0	0.0081 (0.021)	no
Big Pine Reservation	CA	499	0.43 (1.12)	0	0.43 (1.12)	no
Big Sandy Rancheria	CA	118	0.39 (1.02)	0	0.39 (1.02)	no
Big Valley Rancheria	CA	139	0.19 (0.48)	0	0.19 (0.48)	no
Bishop Reservation	CA	1,588	1.35 (3.50)	0.014 (0.035)	1.37 (3.54)	no
Blackfeet Indian Reservation	MT	10,405	2,372.58 (6,144.96)	27.55 (71.35)	2,400.13 (6,216.31)	yes
Blue Lake Rancheria	CA	58	0.085 (0.22)	0.0035 (0.0091)	0.089 (0.23)	yes
Bois Forte Reservation	MN	874	199.67 (517.13)	12.22 (31.65)	211.89 (548.78)	no
Bridgeport Reservation	CA	35	0.054 (0.14)	0	0.054 (0.14)	no

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi² (km²)[2]			Includes ORTL?[1]
			Land	Water	Total	
Brighton Reservation	FL	694	57.13 (147.96)	0.022 (0.058)	57.15 (148.02)	no
Burns Paiute Indian Colony	OR	128	18.95 (49.07)	0.026 (0.068)	18.97 (49.13)	yes
Cabazon Reservation	CA	835	3.00 (7.77)	0	3.00 (7.77)	no
Cahuilla Reservation	CA	187	28.93 (74.94)	0	28.93 (74.94)	no
Campbell Ranch	NV	443	2.59 (6.71)	0	2.59 (6.71)	no
Campo Indian Reservation	CA	362	25.76 (66.73)	0	25.76 (66.73)	no
Capitan Grande Reservation	CA	0	24.88 (64.43)	0.00032 (0.00083)	24.88 (64.43)	no
Carson Colony	NV	242	0.28 (0.73)	0	0.28 (0.73)	no
Catawba Reservation	SC	841	1.58 (4.08)	0	1.58 (4.08)	no
Cattaraugus Reservation	NY	2,185	33.55 (86.90)	0.86 (2.23)	34.41 (89.13)	no
Cedarville Rancheria	CA	15	0.054 (0.14)	0	0.054 (0.14)	yes
Celilo Village	OR	74	0.18 (0.46)	0	0.18 (0.46)	no
Chehalis Reservation	WA	649	7.17 (18.58)	0.20 (0.53)	7.38 (19.12)	yes
Chemehuevi Reservation	CA	308	48.15 (124.71)	0	48.15 (124.71)	no
Cheyenne River Reservation	SD	8,090	4,265.95 (11,048.76)	153.15 (396.65)	4,419.09 (11,445.40)	yes
Chicken Ranch Rancheria	CA	4	0.042 (0.11)	0	0.042 (0.11)	yes
Chitimacha Reservation	LA	555	0.70 (1.82)	0	0.70 (1.82)	no
Coconut Creek Trust Land	FL	0	0.010 (0.026)	0	0.010 (0.026)	no
Cocopah Reservation	AZ	817	10.04 (26.00)	0.029 (0.076)	10.07 (26.07)	no
Coeur d'Alene Reservation	ID	6,760	523.91 (1,356.93)	12.86 (33.30)	536.77 (1,390.24)	no
Cold Springs Rancheria	CA	184	0.16 (0.42)	0	0.16 (0.42)	no
Colorado River Indian Reservation	AZ, CA	8,764	457.31 (1,184.44)	6.83 (17.68)	464.14 (1,202.13)	no
Colusa Rancheria	CA	76	0.40 (1.03)	0	0.40 (1.03)	no
Colville Reservation	WA	7,687	2,116.03 (5,480.48)	69.17 (179.14)	2,185.19 (5,659.62)	yes
Coos, Lower Umpqua, and Siuslaw Reservation	OR	47	0.22 (0.58)	0.0037 (0.0097)	0.23 (0.59)	yes
Coquille Reservation	OR	323	10.08 (26.11)	0.039 (0.10)	10.12 (26.21)	no

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]			Includes ORTL?[1]
			Land	Water	Total	
Cortina Indian Rancheria	CA	21	1.19 (3.08)	0	1.19 (3.08)	no
Coushatta Reservation	LA	88	1.81 (4.69)	0.0073 (0.019)	1.82 (4.71)	yes
Cow Creek Reservation	OR	104	5.43 (14.06)	0	5.43 (14.06)	yes
Coyote Valley Reservation	CA	144	0.14 (0.35)	0	0.14 (0.35)	no
Crow Creek Reservation	SD	2,010	422.53 (1,094.36)	38.84 (100.59)	461.37 (1,194.95)	no
Crow Reservation	MT	6,863	3,594.38 (9,309.39)	12.25 (31.74)	3,606.63 (9,341.13)	yes
Dresslerville Colony	NV	314	1.23 (3.18)	0	1.23 (3.18)	no
Dry Creek Rancheria	CA	0	0.13 (0.33)	0	0.13 (0.33)	yes
Duck Valley Reservation	ID, NV	1,309	448.53 (1,161.68)	4.08 (10.56)	452.60 (1,172.23)	no
Duckwater Reservation	NV	156	6.23 (16.14)	0.022 (0.058)	6.25 (16.19)	no
Eastern Cherokee Reservation	NC	9,018	81.69 (211.58)	0.018 (0.047)	81.71 (211.63)	no
Elk Valley Rancheria	CA	99	0.42 (1.10)	0	0.42 (1.10)	yes
Elko Colony	NV	736	0.30 (0.78)	0	0.30 (0.78)	no
Ely Reservation	NV	202	5.65 (14.63)	0	5.65 (14.63)	no
Enterprise Rancheria	CA	1	0.066 (0.17)	0	0.066 (0.17)	no
Ewiiaapaayp Reservation	CA	0	8.55 (22.14)	0	8.55 (22.14)	no
Fallon Paiute-Shoshone Colony	NV	130	0.17 (0.44)	0	0.17 (0.44)	yes
Fallon Paiute-Shoshone Reservation	NV	581	13.04 (33.77)	0	13.04 (33.77)	yes
Flandreau Reservation	SD	418	3.46 (8.97)	0.034 (0.087)	3.50 (9.06)	no
Flathead Reservation	MT	28,359	1,935.79 (5,013.67)	122.14 (316.35)	2,057.93 (5,330.02)	no
Fond du Lac Reservation	MN, WI	4,250	154.43 (399.97)	4.90 (12.68)	159.33 (412.66)	yes
Forest County Potawatomi Community	WI	588	19.47 (50.44)	0.069 (0.18)	19.54 (50.61)	yes
Fort Apache Reservation	AZ	13,409	2,625.22 (6,799.29)	5.99 (15.51)	2,631.21 (6,814.79)	no
Fort Belknap Reservation	MT	2,851	1,014.55 (2,627.67)	3.81 (9.87)	1,018.36 (2,637.54)	yes
Fort Berthold Reservation	ND	6,341	1,319.11 (3,416.49)	263.50 (682.47)	1,582.62 (4,098.96)	no

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]			Includes ORTL?[1]
			Land	Water	Total	
Fort Bidwell Reservation	CA	94	5.48 (14.20)	0.0058 (0.015)	5.49 (14.22)	yes
Fort Hall Reservation	ID	5,767	814.16 (2,108.66)	41.44 (107.32)	855.59 (2,215.98)	yes
Fort Independence Reservation	CA	93	0.87 (2.26)	0	0.87 (2.26)	no
Fort McDermitt Indian Reservation	OR, NV	334	54.39 (140.88)	0	54.39 (140.88)	no
Fort McDowell Yavapai Nation Reservation	AZ	971	38.60 (99.97)	0.36 (0.93)	38.96 (100.90)	no
Fort Mojave Reservation	AZ, CA, NV	1,477	51.58 (133.58)	1.15 (2.99)	52.73 (136.57)	yes
Fort Peck Indian Reservation	MT	10,008	3,288.66 (8,517.60)	13.34 (34.55)	3,302.00 (8,552.15)	yes
Fort Pierce Reservation	FL	60	0.093 (0.24)	0	0.093 (0.24)	no
Fort Sill Apache Indian Reservation	NM	0	N/A	N/A	N/A	no
Fort Yuma Indian Reservation	AZ, CA	2,197	68.93 (178.53)	1.39 (3.61)	70.32 (182.14)	no
Gila River Indian Reservation	AZ	11,712	584.35 (1,513.45)	0.36 (0.94)	584.71 (1,514.39)	no
Golden Hill Paugussett Reservation	CT	4	0.15 (0.40)	0	0.15 (0.40)	no
Goshute Reservation	NV, UT	143	188.09 (487.16)	0.0050 (0.013)	188.10 (487.17)	no
Grand Portage Reservation	MN	565	74.41 (192.72)	1.24 (3.20)	75.65 (195.92)	yes
Grand Ronde Community	OR	434	16.44 (42.59)	0	16.44 (42.59)	yes
Grand Traverse Reservation	MI	608	1.25 (3.24)	0	1.25 (3.24)	yes
Greenville Rancheria	CA	33	0.11 (0.28)	0	0.11 (0.28)	no
Grindstone Indian Rancheria	CA	164	0.13 (0.33)	0.0089 (0.023)	0.14 (0.35)	no
Guidiville Rancheria	CA	52	0.069 (0.18)	0	0.069 (0.18)	yes
Hannahville Indian Community	MI	523	9.44 (24.45)	0	9.44 (24.45)	yes
Hassanamisco Reservation	MA	2	0.0081 (0.021)	0	0.0081 (0.021)	no
Havasupai Reservation	AZ	465	275.83 (714.40)	0	275.83 (714.40)	no
Ho-Chunk Nation Reservation	MN, WI	1,375	11.01 (28.51)	0.039 (0.10)	11.05 (28.62)	yes
Hoh Indian Reservation	WA	116	0.66 (1.72)	0.037 (0.097)	0.70 (1.82)	yes

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]			Includes ORTL?[1]
			Land	Water	Total	
Hollywood Reservation	FL	1,742	0.77 (2.00)	0.022 (0.056)	0.79 (2.05)	no
Hoopa Valley Reservation	CA	3,041	140.77 (364.59)	0.92 (2.38)	141.68 (366.96)	no
Hopi Reservation	AZ	7,185	2,532.19 (6,558.34)	0.93 (2.41)	2,533.12 (6,560.75)	yes
Hopland Rancheria	CA	38	0.25 (0.64)	0	0.25 (0.64)	no
Houlton Maliseet Reservation	ME	213	1.39 (3.60)	0.0089 (0.023)	1.40 (3.62)	yes
Hualapai Indian Reservation	AZ	1,335	1,601.46 (4,147.77)	3.14 (8.12)	1,604.60 (4,155.89)	yes
Huron Potawatomi Reservation	MI	52	0.32 (0.84)	0.0069 (0.018)	0.33 (0.86)	yes
Immokalee Reservation	FL	127	0.97 (2.51)	0.0081 (0.021)	0.98 (2.53)	no
Inaja and Cosmit Reservation	CA	0	1.34 (3.48)	0	1.34 (3.48)	no
Indian Township Reservation	ME	718	37.59 (97.37)	6.88 (17.83)	44.48 (115.20)	no
Iowa Reservation	KS, NE	166	19.89 (51.52)	0.0062 (0.016)	19.90 (51.53)	yes
Isabella Reservation	MI	26,274	216.62 (561.04)	1.71 (4.44)	218.33 (565.48)	yes
Isleta Pueblo	NM	3,400	330.05 (854.82)	0.93 (2.42)	330.98 (857.24)	no
Jackson Rancheria	CA	0	0.46 (1.19)	0	0.46 (1.19)	no
Jamestown S'Klallam Reservation	WA	11	0.17 (0.45)	0.039 (0.10)	0.21 (0.55)	yes
Jamul Indian Village	CA	0	0.023 (0.060)	0	0.023 (0.060)	no
Jemez Pueblo	NM	1,815	139.66 (361.71)	0.0050 (0.013)	139.66 (361.73)	no
Jena Band of Choctaw Reservation	LA	0	0.10 (0.26)	0	0.10 (0.26)	no
Jicarilla Apache Nation Reservation	NM	3,254	1,369.98 (3,548.23)	4.08 (10.57)	1,374.06 (3,558.79)	yes
Kaibab Indian Reservation	AZ	240	189.74 (491.43)	0.0077 (0.020)	189.75 (491.45)	no
Kalispel Reservation	WA	231	10.39 (26.90)	0.17 (0.45)	10.56 (27.35)	yes
Karuk Reservation	CA	506	1.49 (3.85)	0.035 (0.091)	1.52 (3.94)	yes
Kickapoo Reservation	KS	4,134	236.27 (611.93)	0.56 (1.46)	236.83 (613.39)	no

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]			Includes ORTL?[1]
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Kickapoo Reservation/Sac and Fox Nation Trust Land joint-use area	KS	0	0.41 (1.06)	0	0.41 (1.06)	no
Kickapoo Reservation	TX	366	0.19 (0.50)	0.00058 (0.0015)	0.19 (0.50)	no
Klamath Reservation	OR	26	0.50 (1.29)	0	0.50 (1.29)	no
Kootenai Reservation	ID	82	3.18 (8.23)	0	3.18 (8.23)	yes
La Jolla Reservation	CA	476	13.50 (34.96)	0	13.50 (34.96)	no
La Posta Indian Reservation	CA	55	6.39 (16.56)	0	6.39 (16.56)	no
Lac Courte Oreilles Reservation	WI	2,803	108.29 (280.47)	15.97 (41.37)	124.26 (321.84)	yes
Lac du Flambeau Reservation	WI	3,442	107.01 (277.16)	28.20 (73.03)	135.21 (350.19)	no
Lac Vieux Desert Reservation	MI	137	0.39 (1.00)	0	0.39 (1.00)	no
Laguna Pueblo	NM	4,043	788.25 (2,041.56)	0.91 (2.35)	789.16 (2,043.91)	yes
Lake Traverse Reservation	ND, SD	10,922	1,449.44 (3,754.03)	59.29 (153.56)	1,508.73 (3,907.59)	yes
L'Anse Reservation	MI	3,703	91.97 (238.20)	18.09 (46.85)	110.06 (285.05)	yes
Las Vegas Indian Colony	NV	154	6.24 (16.15)	0	6.24 (16.15)	no
Laytonville Rancheria	CA	212	0.31 (0.79)	0	0.31 (0.79)	no
Leech Lake Reservation	MN	10,660	973.62 (2,521.66)	336.95 (872.69)	1,310.57 (3,394.36)	yes
Likely Rancheria	CA	0	0.0024 (0.0062)	0	0.0024 (0.0062)	no
Little River Reservation	MI	57	1.78 (4.62)	0.0028 (0.0073)	1.79 (4.63)	yes
Little Traverse Bay Reservation	MI	51	1.13 (2.92)	0.00036 (0.00093)	1.13 (2.92)	yes
Lone Pine Reservation	CA	212	0.37 (0.95)	0	0.37 (0.95)	no
Lookout Rancheria	CA	11	0.062 (0.16)	0	0.062 (0.16)	no
Los Coyotes Reservation	CA	98	39.21 (101.56)	0	39.21 (101.56)	no
Lovelock Indian Colony	NV	88	0.032 (0.084)	0	0.032 (0.084)	no
Lower Brule Reservation	SD	1,505	343.40 (889.41)	46.15 (119.54)	389.56 (1,008.95)	yes
Lower Elwha Reservation	WA	609	2.04 (5.28)	0.11 (0.29)	2.15 (5.57)	yes

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]			Includes ORTL?[1]
			Land	Water	Total	
Lower Sioux Indian Community	MN	419	2.63 (6.82)	0.046 (0.12)	2.68 (6.94)	no
Lummi Reservation	WA	4,706	20.66 (53.52)	16.01 (41.47)	36.68 (94.99)	no
Lytton Rancheria	CA	0	0.0085 (0.022)	0	0.0085 (0.022)	no
Makah Indian Reservation	WA	1,414	46.74 (121.06)	0.23 (0.60)	46.97 (121.66)	no
Manchester-Point Arena Rancheria	CA	212	0.59 (1.52)	0	0.59 (1.52)	no
Manzanita Reservation	CA	78	7.17 (18.58)	0	7.17 (18.58)	yes
Maricopa Ak Chin Indian Reservation	AZ	1,001	32.78 (84.90)	0	32.78 (84.90)	yes
Mashantucket Pequot Reservation	CT	299	2.55 (6.61)	0	2.55 (6.61)	yes
Match-e-be-nash-she-wish Band of Pottawatomi Reservation	MI	0	0.24 (0.63)	0	0.24 (0.63)	no
Mattaponi Reservation	VA	65	0.11 (0.28)	0.012 (0.032)	0.12 (0.31)	no
Menominee Reservation	WI	3,141	355.47 (920.66)	7.35 (19.04)	362.82 (939.70)	yes
Mesa Grande Reservation	CA	98	2.73 (7.06)	0	2.73 (7.06)	no
Mescalero Reservation	NM	3,613	718.49 (1,860.89)	0.57 (1.47)	719.06 (1,862.36)	no
Miccosukee Reservation	FL	406	136.09 (352.48)	0.031 (0.079)	136.12 (352.56)	yes
Middletown Rancheria	CA	56	0.19 (0.49)	0	0.19 (0.49)	no
Mille Lacs Reservation	MN	4,907	98.49 (255.10)	4.74 (12.27)	103.23 (267.37)	yes
Minnesota Chippewa Trust Land	MN	64	0.58 (1.50)	0	0.58 (1.50)	no
Mississippi Choctaw Reservation	MS	7,436	46.96 (121.62)	0.097 (0.25)	47.05 (121.87)	yes
Moapa River Indian Reservation	NV	260	110.97 (287.40)	0	110.97 (287.40)	no
Mohegan Reservation	CT	48	0.80 (2.06)	0.000046 (0.00012)	0.80 (2.06)	yes
Montgomery Creek Rancheria	CA	12	0.12 (0.31)	0	0.12 (0.31)	no
Mooretown Rancheria	CA	181	0.46 (1.20)	0	0.46 (1.20)	yes
Morongo Reservation	CA	913	53.48 (138.50)	0.13 (0.33)	53.60 (138.83)	yes
MOWA Choctaw Reservation	AL	87	1.04 (2.69)	0	1.04 (2.69)	no

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Muckleshoot Reservation	WA	3,870	6.04 (15.65)	0.097 (0.25)	6.14 (15.90)	yes
Nambe Pueblo	NM	1,611	32.36 (83.81)	0.042 (0.11)	32.40 (83.92)	yes
Narragansett Reservation	RI	0	3.22 (8.33)	0.0021 (0.0055)	3.22 (8.33)	no
Navajo Nation Reservation	AZ, NM, UT	173,667	24,129.57 (62,495.30)	26.49 (68.61)	24,156.06 (62,563.91)	yes
Nez Perce Reservation	ID	18,437	1,193.77 (3,091.85)	10.48 (27.14)	1,204.25 (3,119.00)	no
Nisqually Reservation	WA	575	7.91 (20.49)	0.31 (0.81)	8.22 (21.29)	no
Nooksack Reservation	WA	884	4.40 (11.39)	0.093 (0.24)	4.49 (11.62)	yes
North Fork Rancheria	CA	60	0.36 (0.94)	0	0.36 (0.94)	yes
Northern Cheyenne Indian Reservation	MT, SD	4,789	706.97 (1,831.05)	0.15 (0.38)	707.12 (1,831.43)	yes
Northwestern Shoshone Reservation	UT	0	0.31 (0.79)	0	0.31 (0.79)	no
Ohkay Owingeh	NM	6,309	26.41 (68.39)	0.31 (0.80)	26.71 (69.19)	no
Oil Springs Reservation	NY	1	0.96 (2.49)	0.011 (0.028)	0.97 (2.52)	no
Omaha Reservation	IA, NE	4,773	307.03 (795.20)	2.97 (7.68)	309.99 (802.88)	no
Oneida Reservation	WI	22,776	102.20 (264.69)	0.12 (0.31)	102.31 (264.99)	yes
Oneida Nation Reservation	NY	25	0.081 (0.21)	0	0.081 (0.21)	no
Onondaga Nation Reservation	NY	468	9.25 (23.95)	0.046 (0.12)	9.29 (24.07)	no
Ontonagon Reservation	MI	0	3.74 (9.68)	0	3.74 (9.68)	no
Osage Reservation	OK	47,472	2,246.36 (5,818.04)	57.62 (149.23)	2,303.98 (5,967.27)	no
Paiute Reservation	UT	273	50.80 (131.57)	0.019 (0.048)	50.82 (131.62)	no
Pala Reservation	CA	1,315	20.35 (52.71)	0	20.35 (52.71)	no
Pamunkey Reservation	VA	73	1.71 (4.42)	0.76 (1.96)	2.46 (6.38)	no
Pascua Pueblo Yaqui Reservation	AZ	3,484	2.20 (5.70)	0	2.20 (5.70)	yes
Paskenta Rancheria	CA	0	3.34 (8.66)	0.0035 (0.0091)	3.35 (8.67)	no

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Passamaquoddy Trust Land	ME	0	143.38 (371.35)	5.96 (15.43)	149.34 (386.78)	no
Paucatuck Eastern Pequot Reservation	CT	30	0.36 (0.92)	0.023 (0.059)	0.38 (0.98)	no
Pauma and Yuima Reservation	CA	206	9.36 (24.25)	0	9.36 (24.25)	no
Pechanga Reservation	CA	346	7.01 (18.16)	0.0024 (0.0061)	7.02 (18.17)	no
Penobscot Reservation	ME	631	153.22 (396.85)	22.44 (58.13)	175.67 (454.98)	yes
Picayune Rancheria	CA	69	0.31 (0.79)	0.00069 (0.0018)	0.31 (0.79)	yes
Picuris Pueblo	NM	1,886	27.36 (70.85)	0.0027 (0.0071)	27.36 (70.86)	no
Pine Ridge Reservation	NE, SD	18,834	4,343.21 (11,248.87)	10.59 (27.42)	4,353.80 (11,276.29)	no
Pinoleville Rancheria	CA	129	0.16 (0.42)	0	0.16 (0.42)	no
Pit River Trust Land	CA	4	0.42 (1.09)	0.00020 (0.00052)	0.42 (1.09)	no
Pleasant Point Reservation	ME	749	0.57 (1.47)	0.41 (1.05)	0.97 (2.52)	no
Poarch Creek Reservation	AL, FL	287	0.62 (1.61)	0.0030 (0.0078)	0.63 (1.62)	yes
Pokagon Reservation	MI	29	4.56 (11.81)	0.077 (0.20)	4.64 (12.02)	yes
Ponca Trust Land	IA, NE	10	0.32 (0.83)	0	0.32 (0.83)	no
Poospatuck Reservation	NY	324	0.11 (0.29)	0.058 (0.15)	0.17 (0.44)	no
Port Gamble Reservation	WA	682	1.88 (4.86)	0	1.88 (4.86)	yes
Port Madison Reservation	WA	7,640	11.65 (30.18)	0	11.65 (30.18)	no
Prairie Band of Potawatomi Nation Reservation	KS	1,469	121.51 (314.70)	0.066 (0.17)	121.58 (314.88)	no
Prairie Island Indian Community	MN	217	2.71 (7.03)	0.11 (0.29)	2.83 (7.32)	yes
Pueblo de Cochiti	NM	1,727	80.25 (207.84)	1.87 (4.84)	82.12 (212.68)	no
Pueblo of Pojoaque	NM	3,316	21.41 (55.45)	0	21.41 (55.45)	yes
Puyallup Reservation	WA	46,816	28.58 (74.01)	0.85 (2.19)	29.42 (76.20)	yes
Pyramid Lake Paiute Reservation	NV	1,660	555.45 (1,438.61)	174.06 (450.82)	729.52 (1,889.44)	no
Quartz Valley Reservation	CA	187	1.11 (2.87)	0.0058 (0.015)	1.12 (2.89)	yes

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Quileute Reservation	WA	460	1.60 (4.15)	0.0037 (0.0096)	1.61 (4.16)	no
Quinault Reservation	WA	1,408	312.65 (809.77)	11.43 (29.60)	324.08 (839.36)	no
Ramona Village	CA	13	0.85 (2.20)	0.0058 (0.015)	0.85 (2.21)	no
Red Cliff Reservation	WI	1,123	22.78 (59.00)	0.14 (0.35)	22.92 (59.35)	yes
Red Lake Reservation	MN	5,896	881.29 (2,282.54)	377.04 (976.53)	1,258.33 (3,259.07)	no
Redding Rancheria	CA	34	0.042 (0.11)	0.000058 (0.00015)	0.042 (0.11)	no
Redwood Valley Rancheria	CA	238	0.42 (1.10)	0	0.42 (1.10)	no
Reno-Sparks Indian Colony	NV	919	3.36 (8.70)	0	3.36 (8.70)	no
Resighini Rancheria	CA	31	0.34 (0.88)	0	0.34 (0.88)	no
Rincon Reservation	CA	1,215	6.16 (15.96)	0	6.16 (15.96)	yes
Roaring Creek Rancheria	CA	14	0.13 (0.33)	0.000089 (0.00023)	0.13 (0.33)	no
Robinson Rancheria	CA	207	0.32 (0.82)	0.0026 (0.0067)	0.32 (0.82)	yes
Rocky Boy's Reservation	MT	3,323	171.17 (443.32)	0.17 (0.44)	171.34 (443.76)	yes
Rohnerville Rancheria	CA	38	0.069 (0.18)	0	0.069 (0.18)	no
Rosebud Indian Reservation	SD	10,869	1,971.52 (5,106.22)	3.90 (10.10)	1,975.42 (5,116.32)	yes
Round Valley Reservation	CA	401	36.17 (93.69)	0.054 (0.14)	36.23 (93.83)	yes
Rumsey Indian Rancheria	CA	77	0.76 (1.98)	0	0.76 (1.98)	no
Sac and Fox Nation Reservation	KS, NE	173	23.66 (61.29)	0	23.66 (61.29)	yes
Sac and Fox/Meskwaki Settlement	IA	1,062	9.86 (25.55)	0	9.86 (25.55)	yes
Salt River Reservation	AZ	6,289	82.50 (213.67)	2.89 (7.49)	85.39 (221.16)	no
San Carlos Reservation	AZ	10,068	2,902.72 (7,518.02)	24.20 (62.68)	2,926.92 (7,580.70)	no
San Felipe Pueblo	NM	3,563	79.50 (205.91)	0.51 (1.31)	80.01 (207.23)	no
San Felipe Pueblo/Santa Ana Pueblo joint-use area	NM	0	1.10 (2.84)	0	1.10 (2.84)	no
San Felipe Pueblo/Santo Domingo Pueblo joint-use area	NM	0	1.24 (3.21)	0	1.24 (3.21)	no

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San Ildefonso Pueblo	NM	1,752	47.10 (121.99)	0.21 (0.54)	47.31 (122.53)	yes
San Manuel Reservation	CA	112	1.05 (2.71)	0	1.05 (2.71)	yes
San Pasqual Reservation	CA	1,097	2.24 (5.79)	0	2.24 (5.79)	no
Sandia Pueblo	NM	4,965	38.35 (99.32)	0.55 (1.42)	38.89 (100.73)	no
Santa Ana Pueblo	NM	621	100.53 (260.38)	0.51 (1.33)	101.05 (261.71)	no
Santa Clara Pueblo	NM	11,021	76.85 (199.05)	0.25 (0.65)	77.10 (199.70)	yes
Santa Rosa Rancheria	CA	652	0.63 (1.62)	0	0.63 (1.62)	no
Santa Rosa Reservation	CA	71	17.06 (44.19)	0	17.06 (44.19)	no
Santa Ynez Reservation	CA	271	0.24 (0.63)	0	0.24 (0.63)	no
Santa Ysabel Reservation	CA	330	23.42 (60.67)	0	23.42 (60.67)	no
Santee Reservation	NE	901	172.91 (447.83)	11.60 (30.05)	184.51 (477.88)	no
Santo Domingo Pueblo	NM	3,255	106.05 (274.68)	0.28 (0.73)	106.34 (275.41)	no
Sauk-Suiattle Reservation	WA	71	0.073 (0.19)	0	0.073 (0.19)	no
Sault Ste. Marie Reservation	MI	1,747	1.96 (5.07)	0.017 (0.045)	1.98 (5.12)	yes
Schaghticoke Reservation	CT	9	0.43 (1.12)	0	0.43 (1.12)	no
Seminole Trust Land	FL	0	0.0028 (0.0073)	0	0.0028 (0.0073)	no
Shakopee Mdewakanton Sioux Community	MN	658	2.49 (6.45)	0.0013 (0.0034)	2.49 (6.45)	yes
Sherwood Valley Rancheria	CA	168	0.77 (2.00)	0	0.77 (2.00)	yes
Shingle Springs Rancheria	CA	102	0.27 (0.70)	0	0.27 (0.70)	yes
Shinnecock Reservation	NY	662	1.35 (3.49)	0	1.35 (3.49)	no
Shoalwater Bay Indian Reservation	WA	82	1.05 (2.73)	0.25 (0.64)	1.31 (3.38)	yes
Siletz Reservation	OR	506	6.87 (17.80)	0.00050 (0.0013)	6.87 (17.80)	yes
Skokomish Reservation	WA	730	8.21 (21.26)	0.22 (0.57)	8.43 (21.83)	no
Skull Valley Reservation	UT	23	28.16 (72.93)	0	28.16 (72.93)	no
Smith River Rancheria	CA	113	0.31 (0.81)	0	0.31 (0.81)	yes
Snoqualmie Reservation	WA	0	0.089 (0.23)	0	0.089 (0.23)	no

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			Land	Water	Total	
Soboba Reservation	CA	482	10.62 (27.50)	0.19 (0.48)	10.80 (27.97)	yes
Sokaogon Chippewa Community	WI	414	4.88 (12.65)	0.34 (0.89)	5.22 (13.53)	yes
South Fork Reservation	NV	122	26.56 (68.78)	0.0042 (0.011)	26.56 (68.79)	yes
Southern Ute Reservation	CO	12,153	1,058.72 (2,742.07)	4.69 (12.14)	1,063.41 (2,754.21)	no
Spirit Lake Reservation	ND	4,238	389.63 (1,009.15)	9.78 (25.33)	399.41 (1,034.47)	no
Spokane Reservation	WA	2,096	238.10 (616.67)	12.34 (31.97)	250.44 (648.63)	yes
Squaxin Island Reservation	WA	431	3.35 (8.67)	0.031 (0.079)	3.38 (8.75)	yes
St. Croix Reservation	WI	768	3.71 (9.60)	0.10 (0.26)	3.81 (9.86)	yes
St. Regis Mohawk Reservation	NY	3,228	18.94 (49.06)	2.05 (5.31)	20.99 (54.36)	no
Standing Rock Reservation	ND, SD	8,217	3,568.44 (9,242.21)	94.20 (243.97)	3,662.63 (9,486.18)	no
Stewart Community	NV	147	4.42 (11.45)	0.0023 (0.0060)	4.42 (11.45)	no
Stewarts Point Rancheria	CA	78	0.066 (0.17)	0	0.066 (0.17)	no
Stillaguamish Reservation	WA	4	0.35 (0.90)	0	0.35 (0.90)	yes
Stockbridge Munsee Community	WI	644	23.83 (61.73)	0.037 (0.096)	23.87 (61.83)	yes
Sulphur Bank Rancheria	CA	61	0.073 (0.19)	0.0089 (0.023)	0.085 (0.22)	no
Summit Lake Reservation	NV	1	19.02 (49.26)	0.71 (1.84)	19.73 (51.09)	yes
Susanville Indian Rancheria	CA	549	1.67 (4.33)	0	1.67 (4.33)	yes
Swinomish Reservation	WA	3,010	11.91 (30.84)	9.11 (23.60)	21.02 (54.44)	yes
Sycuan Reservation	CA	211	1.28 (3.31)	0	1.28 (3.31)	yes
Table Bluff Reservation	CA	103	0.12 (0.31)	0	0.12 (0.31)	no
Table Mountain Rancheria	CA	64	0.21 (0.55)	0	0.21 (0.55)	no
Tama Reservation	GA	9	0.14 (0.37)	0.00081 (0.0021)	0.14 (0.37)	no
Tampa Reservation	FL	0	0.069 (0.18)	0.00069 (0.0018)	0.069 (0.18)	no
Taos Pueblo	NM	4,384	156.14 (404.39)	0.058 (0.15)	156.20 (404.55)	yes

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Tesuque Pueblo	NM	841	26.93 (69.75)	0	26.93 (69.75)	yes
Timbi-Sha Shoshone Reservation	CA, NV	24	12.79 (33.12)	0	12.79 (33.12)	yes
Tohono O'odham Nation Reservation	AZ	10,201	4,453.49 (11,534.49)	0.34 (0.88)	4,453.83 (11,535.37)	yes
Tonawanda Reservation	NY	517	11.80 (30.56)	0.069 (0.18)	11.87 (30.74)	no
Tonto Apache Reservation	AZ	120	0.13 (0.34)	0	0.13 (0.34)	yes
Torres-Martinez Reservation	CA	5,594	34.22 (88.62)	15.04 (38.96)	49.26 (127.58)	no
Trinidad Rancheria	CA	132	0.13 (0.34)	0	0.13 (0.34)	yes
Tulalip Reservation	WA	10,631	34.75 (89.99)	17.47 (45.25)	52.22 (135.24)	yes
Tule River Reservation	CA	1,049	84.29 (218.32)	0	84.29 (218.32)	yes
Tunica-Biloxi Reservation	LA	121	1.22 (3.15)	0	1.22 (3.15)	yes
Tuolumne Rancheria	CA	185	0.59 (1.54)	0	0.59 (1.54)	no
Turtle Mountain Reservation	MT, ND, SD	8,669	227.49 (589.19)	9.95 (25.76)	237.43 (614.95)	yes
Tuscarora Nation Reservation	NY	1,152	9.08 (23.52)	0	9.08 (23.52)	no
Twenty-Nine Palms Reservation	CA	12	0.60 (1.56)	0	0.60 (1.56)	no
Uintah and Ouray Reservation	UT	24,369	6,774.15 (17,544.96)	50.98 (132.04)	6,825.13 (17,677.00)	yes
Umatilla Reservation	OR	3,031	270.70 (701.11)	0	270.70 (701.11)	yes
Upper Lake Rancheria	CA	87	0.74 (1.92)	0.0033 (0.0086)	0.75 (1.93)	no
Upper Sioux Community	MN	148	2.01 (5.20)	0.046 (0.12)	2.05 (5.31)	yes
Upper Skagit Reservation	WA	220	0.18 (0.46)	0	0.18 (0.46)	no
Ute Mountain Reservation	CO, NM, UT	1,742	900.74 (2,332.91)	0.23 (0.60)	900.97 (2,333.50)	yes
Viejas Reservation	CA	520	2.51 (6.50)	0	2.51 (6.50)	no
Walker River Reservation	NV	746	528.35 (1,368.42)	3.00 (7.78)	531.35 (1,376.20)	no
Wampanoag-Aquinnah Trust Land	MA	76	0.73 (1.90)	0.0085 (0.022)	0.75 (1.93)	no
Warm Springs Reservation	OR	4,012	1,018.91 (2,638.96)	4.13 (10.70)	1,023.04 (2,649.66)	yes
Washoe Ranches Trust Land	CA, NV	2,916	144.99 (375.53)	1.05 (2.71)	146.04 (378.24)	no
Wells Colony	NV	70	0.13 (0.33)	0	0.13 (0.33)	no

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]			Includes ORTL?[1]
			Land	Water	Total	
White Earth Reservation	MN	9,562	1,097.56 (2,842.68)	69.45 (179.87)	1,167.01 (3,022.55)	yes
Wind River Reservation	WY	26,490	3,474.82 (8,999.75)	57.79 (149.68)	3,532.61 (9,149.43)	yes
Winnebago Reservation	IA, NE	2,694	176.97 (458.35)	1.14 (2.94)	178.11 (461.30)	yes
Winnemucca Indian Colony	NV	53	0.56 (1.44)	0	0.56 (1.44)	no
Woodfords Community	CA	214	0.61 (1.58)	0	0.61 (1.58)	no
XL Ranch Rancheria	CA	60	15.24 (39.46)	0.016 (0.042)	15.25 (39.50)	no
Yakama Nation Reservation	WA	31,272	2,186.35 (5,662.61)	1.64 (4.24)	2,187.98 (5,666.85)	yes
Yankton Reservation	SD	6,465	665.47 (1,723.55)	19.07 (49.38)	684.53 (1,772.93)	no
Yavapai-Apache Nation Reservation	AZ	718	1.01 (2.61)	0	1.01 (2.61)	no
Yavapai-Prescott Reservation	AZ	192	2.20 (5.71)	0	2.20 (5.71)	no
Yerington Colony	NV	151	0.031 (0.081)	0	0.031 (0.081)	no
Yomba Reservation	NV	95	7.30 (18.91)	0.0042 (0.011)	7.31 (18.92)	no
Ysleta del Sur Pueblo	TX	804	5.03 (13.03)	0	5.03 (13.03)	yes
Yurok Reservation	CA	1,238	84.73 (219.46)	3.35 (8.67)	88.08 (228.13)	no
Zia Pueblo	NM	737	191.08 (494.90)	0.046 (0.12)	191.12 (495.01)	yes
Zuni Reservation	AZ, NM	7,891	724.55 (1,876.58)	1.27 (3.30)	725.82 (1,879.87)	yes

Alaska Native Village Statistical Areas

Alaska Natives previously had many small reserves scattered around Alaska; however, all but one (the Annette Island Reserve of Tsimshian) were repealed with the passage of the Alaska Native Claims Settlement Act in 1971.

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi² (km²)[2]		
			Land	Water	Total
Akhiok	AK	71	7.77 (20.12)	2.44 (6.33)	10.21 (26.45)
Akiachak	AK	627	14.52 (37.61)	1.59 (4.13)	16.11 (41.73)
Akiak	AK	346	1.01 (2.62)	0.025 (0.064)	1.03 (2.68)
Akutan	AK	1,003	1.42 (3.67)	0.097 (0.25)	1.52 (3.93)
Alakanuk	AK	677	29.53 (76.49)	10.04 (26.01)	39.57 (102.49)
Alatna	AK	32	18.00 (46.61)	0.36 (0.94)	18.36 (47.55)
Aleknagik	AK	219	12.31 (31.89)	6.80 (17.61)	19.11 (49.50)
Algaaciq	AK	424	2.15 (5.57)	0.26 (0.67)	2.41 (6.24)
Allakaket	AK	171	8.50 (22.02)	0.61 (1.58)	9.11 (23.60)
Ambler	AK	258	8.98 (23.26)	1.54 (4.00)	10.53 (27.26)
Anaktuvuk Pass	AK	324	4.83 (12.52)	0.054 (0.14)	4.89 (12.66)
Andreafsky	AK	83	25.59 (66.29)	2.22 (5.74)	27.81 (72.03)
Angoon	AK	459	24.41 (63.22)	14.36 (37.19)	38.77 (100.41)
Aniak	AK	501	11.78 (30.50)	2.38 (6.17)	14.16 (36.67)
Anvik	AK	85	9.68 (25.07)	2.27 (5.89)	11.95 (30.96)
Arctic Village	AK	152	11.96 (30.97)	3.75 (9.70)	15.71 (40.68)
Atka	AK	61	8.58 (22.21)	0.33 (0.86)	8.91 (23.07)
Atmautluak	AK	277	0.54 (1.41)	0.47 (1.21)	1.01 (2.61)
Atqasuk	AK	233	38.71 (100.25)	3.62 (9.37)	42.32 (109.62)
Utqiagvik	AK	4,212	18.84 (48.79)	2.66 (6.89)	21.50 (55.68)
Beaver	AK	84	20.25 (52.46)	0.75 (1.94)	21.00 (54.40)
Belkofski	AK	0	2.67 (6.91)	0.78 (2.01)	3.44 (8.92)
Bethel	AK	6,080	43.18 (111.84)	5.52 (14.30)	48.71 (126.15)
Bill Moore's	AK	0	2.44 (6.33)	0	2.44 (6.33)
Birch Creek	AK	33	8.75 (22.65)	0.25 (0.66)	9.00 (23.31)
Brevig Mission	AK	388	2.56 (6.63)	0.069 (0.18)	2.63 (6.81)
Buckland	AK	416	1.41 (3.64)	0.16 (0.42)	1.57 (4.06)
Cantwell	AK	219	99.45 (257.58)	0.058 (0.15)	99.51 (257.73)
Canyon Village	AK	0	30.77 (79.69)	3.15 (8.16)	33.92 (87.85)
Chalkyitsik	AK	69	8.48 (21.97)	0.28 (0.73)	8.76 (22.70)
Chefornak	AK	418	5.72 (14.81)	0.68 (1.75)	6.39 (16.56)
Chenega	AK	76	29.29 (75.85)	0.28 (0.72)	29.56 (76.57)
Chevak	AK	938	0.99 (2.56)	0.021 (0.055)	1.01 (2.62)
Chickaloon	AK	23,087	5,956.81 (15,428.08)	60.48 (156.65)	6,017.30 (15,584.73)
Chignik	AK	91	11.39 (29.49)	4.49 (11.62)	15.87 (41.11)

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi² (km²)[2]		
			Land	Water	Total
Chignik Lagoon	AK	78	13.77 (35.67)	0	13.77 (35.67)
Chignik Lake	AK	73	15.49 (40.12)	3.85 (9.96)	19.34 (50.09)
Chilkat	AK	99	1.53 (3.95)	0.53 (1.36)	2.05 (5.31)
Chilkoot	AK	441	0.47 (1.21)	0	0.47 (1.21)
Chistochina	AK	78	26.80 (69.40)	0	26.80 (69.40)
Chitina	AK	96	119.45 (309.37)	0.32 (0.83)	119.77 (310.20)
Chuathbaluk	AK	118	3.47 (8.98)	1.72 (4.46)	5.19 (13.44)
Chulloonawick	AK	0	35.72 (92.52)	10.27 (26.59)	45.99 (119.12)
Circle	AK	104	106.04 (274.63)	0.54 (1.40)	106.58 (276.03)
Clarks Point	AK	62	3.07 (7.96)	0.98 (2.54)	4.05 (10.50)
Copper Center	AK	442	15.41 (39.90)	0	15.41 (39.90)
Council	AK	0	21.24 (55.01)	0.91 (2.35)	22.15 (57.36)
Craig	AK	1,478	14.51 (37.57)	2.32 (6.01)	16.83 (43.58)
Crooked Creek	AK	105	99.82 (258.52)	7.58 (19.62)	107.39 (278.14)
Deering	AK	122	5.05 (13.07)	0.073 (0.19)	5.12 (13.26)
Dillingham	AK	2,378	70.90 (183.63)	2.78 (7.19)	73.68 (190.82)
Dot Lake	AK	62	4.27 (11.05)	0	4.27 (11.05)
Douglas	AK	5,474	76.54 (198.24)	0.039 (0.10)	76.58 (198.35)
Eagle	AK	69	17.01 (44.06)	0	17.01 (44.06)
Eek	AK	296	0.91 (2.36)	0.12 (0.32)	1.03 (2.68)
Egegik	AK	109	33.03 (85.54)	38.27 (99.12)	71.30 (184.66)
Eklutna	AK	54	4.55 (11.79)	4.02 (10.41)	8.57 (22.19)
Ekuk	AK	2	4.24 (10.97)	0	4.24 (10.97)
Ekwok	AK	115	16.27 (42.15)	1.24 (3.22)	17.52 (45.37)
Elim	AK	330	307.23 (795.72)	8.77 (22.72)	316.00 (818.44)
Emmonak	AK	762	7.67 (19.87)	1.48 (3.84)	9.16 (23.72)
Evansville	AK	26	6.02 (15.59)	0	6.02 (15.59)
Eyak	AK	128	14.18 (36.73)	0.69 (1.80)	14.88 (38.53)
False Pass	AK	35	12.76 (33.06)	0	12.76 (33.06)
Fort Yukon	AK	583	7.25 (18.77)	0.22 (0.57)	7.47 (19.34)
Gakona	AK	122	36.69 (95.03)	0	36.69 (95.03)
Galena	AK	470	17.17 (44.48)	6.37 (16.49)	23.54 (60.97)
Gambell	AK	681	10.90 (28.23)	1.88 (4.87)	12.78 (33.10)
Georgetown	AK	2	43.80 (113.45)	1.12 (2.90)	44.92 (116.35)
Golovin	AK	156	3.72 (9.64)	0	3.72 (9.64)
Goodnews Bay	AK	243	3.73 (9.65)	0	3.73 (9.65)

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]		
			Land	Water	Total
Grayling	AK	194	10.96 (28.39)	0.013 (0.033)	10.98 (28.43)
Gulkana	AK	136	4.33 (11.22)	0	4.33 (11.22)
Hamilton	AK	0	5.06 (13.11)	0.15 (0.40)	5.21 (13.50)
Healy Lake	AK	13	47.37 (122.68)	8.28 (21.45)	55.65 (144.14)
Holy Cross	AK	178	30.19 (78.19)	7.05 (18.27)	37.24 (96.46)
Hoonah	AK	760	6.01 (15.56)	1.28 (3.32)	7.29 (18.87)
Hooper Bay	AK	1,093	8.22 (21.29)	0.32 (0.84)	8.54 (22.13)
Hughes	AK	78	3.94 (10.21)	1.13 (2.93)	5.08 (13.15)
Huslia	AK	275	16.43 (42.56)	0.64 (1.67)	17.08 (44.24)
Hydaburg	AK	376	0.58 (1.51)	0.0022 (0.0058)	0.58 (1.51)
Igiugig	AK	54	20.58 (53.30)	1.54 (4.00)	22.12 (57.30)
Iliamna	AK	109	37.13 (96.17)	0.46 (1.20)	37.59 (97.37)
Inalik	AK	115	2.84 (7.36)	0	2.84 (7.36)
Ivanof Bay	AK	7	4.19 (10.86)	0	4.19 (10.86)
Kake	AK	557	8.96 (23.21)	6.01 (15.56)	14.97 (38.78)
Kaktovik	AK	239	0.72 (1.87)	0.22 (0.58)	0.95 (2.45)
Kalskag	AK	210	3.69 (9.55)	0.44 (1.15)	4.13 (10.70)
Kaltag	AK	190	21.59 (55.92)	6.02 (15.60)	27.61 (71.51)
Karluk	AK	37	24.39 (63.17)	1.10 (2.85)	25.49 (66.03)
Kasaan	AK	49	6.00 (15.54)	0.49 (1.27)	6.49 (16.81)
Kasigluk	AK	569	12.08 (31.29)	1.04 (2.70)	13.12 (33.99)
Kenaitze	AK	32,902	1,959.09 (5,074.01)	97.19 (251.73)	2,056.28 (5,325.74)
Ketchikan	AK	12,742	21.60 (55.95)	0.10 (0.27)	21.71 (56.22)
Kiana	AK	363	1.11 (2.87)	0	1.11 (2.87)
King Cove	AK	938	11.69 (30.28)	2.50 (6.47)	14.19 (36.75)
King Salmon	AK	167	9.95 (25.78)	0.12 (0.30)	10.07 (26.08)
Kipnuk	AK	639	19.99 (51.77)	0.32 (0.82)	20.31 (52.60)
Kivalina	AK	374	1.49 (3.87)	2.46 (6.38)	3.96 (10.26)
Klawock	AK	591	0.70 (1.81)	0.27 (0.69)	0.97 (2.50)
Knik	AK	65,768 (6,600 native)	6,888.41 (17,840.90)	476.43 (1,233.94)	7,364.83 (19,074.83)
Kobuk	AK	151	16.22 (42.01)	0.52 (1.35)	16.74 (43.36)
Kodiak	AK	0	48.69 (126.10)	0.38 (0.99)	49.07 (127.10)
Kokhanok	AK	170	20.83 (53.94)	0.12 (0.30)	20.94 (54.24)
Kongiganak	AK	439	1.88 (4.87)	0.11 (0.28)	1.99 (5.15)

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]		
			Land	Water	Total
Kotlik	AK	577	3.78 (9.79)	0.73 (1.88)	4.50 (11.66)
Kotzebue	AK	3,201	26.92 (69.72)	1.68 (4.36)	28.60 (74.08)
Koyuk	AK	332	4.77 (12.35)	0	4.77 (12.35)
Koyukuk	AK	96	5.60 (14.51)	0.11 (0.29)	5.71 (14.80)
Kwethluk	AK	721	10.06 (26.05)	1.56 (4.04)	11.61 (30.08)
Kwigillingok	AK	321	23.74 (61.49)	0.089 (0.23)	23.83 (61.71)
Kwinhagak	AK	669	4.37 (11.33)	0.96 (2.48)	5.33 (13.81)
Lake Minchumina	AK	11	3.86 (9.99)	0.40 (1.04)	4.26 (11.03)
Larsen Bay	AK	87	5.39 (13.96)	2.21 (5.72)	7.60 (19.68)
Lesnoi	AK	0	2.41 (6.25)	0.12 (0.31)	2.53 (6.56)
Levelock	AK	69	12.10 (31.33)	0	12.10 (31.33)
Lime Village	AK	29	76.49 (198.11)	2.19 (5.67)	78.68 (203.78)
Lower Kalskag	AK	282	1.22 (3.17)	0.49 (1.28)	1.72 (4.45)
Manley Hot Springs	AK	89	15.05 (38.99)	0	15.05 (38.99)
Manokotak	AK	442	35.74 (92.56)	1.41 (3.64)	37.14 (96.20)
Marshall	AK	414	4.58 (11.87)	0.0039 (0.010)	4.59 (11.88)
Mary's Igloo	AK	0	0.44 (1.15)	0.050 (0.13)	0.49 (1.28)
McGrath	AK	346	47.32 (122.55)	7.14 (18.50)	54.46 (141.04)
Mekoryuk	AK	191	6.37 (16.49)	0.0054 (0.014)	6.37 (16.51)
Mentasta Lake	AK	92	37.78 (97.85)	1.71 (4.43)	39.49 (102.27)
Minto	AK	210	3.02 (7.83)	0	3.02 (7.83)
Mountain Village	AK	813	108.10 (279.97)	31.82 (82.41)	139.92 (362.38)
Naknek	AK	544	81.55 (211.21)	0.66 (1.71)	82.21 (212.92)
Nanwalek	AK	254	8.39 (21.72)	0.014 (0.036)	8.40 (21.75)
Napaimute	AK	2	25.19 (65.25)	3.21 (8.32)	28.40 (73.56)
Napakiak	AK	354	4.41 (11.42)	0.62 (1.60)	5.02 (13.01)
Napaskiak	AK	405	3.63 (9.39)	0.35 (0.91)	3.98 (10.31)
Nelson Lagoon	AK	52	4.56 (11.82)	0.077 (0.20)	4.64 (12.01)
Nenana	AK	378	5.90 (15.27)	0.058 (0.15)	5.95 (15.42)
New Koliganek	AK	209	16.73 (43.32)	0.34 (0.89)	17.07 (44.21)
New Stuyahok	AK	510	32.48 (84.13)	2.23 (5.78)	34.71 (89.91)
Newhalen	AK	190	5.90 (15.29)	2.33 (6.03)	8.23 (21.32)
Newtok	AK	354	8.32 (21.55)	0.12 (0.31)	8.44 (21.86)
Nightmute	AK	261	5.24 (13.57)	0.0046 (0.012)	5.24 (13.58)

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]		
			Land	Water	Total
Nikolai	AK	94	4.60 (11.91)	0.29 (0.74)	4.88 (12.65)
Nikolski	AK	18	19.64 (50.88)	0.73 (1.90)	20.37 (52.77)
Ninilchik	AK	14,512	898.69 (2,327.60)	530.10 (1,372.96)	1,428.79 (3,700.56)
Noatak	AK	514	16.20 (41.97)	0.69 (1.78)	16.89 (43.75)
Nome	AK	3,681	125.08 (323.95)	8.70 (22.52)	133.77 (346.47)
Nondalton	AK	164	8.21 (21.27)	0.58 (1.51)	8.80 (22.78)
Noorvik	AK	668	0.94 (2.43)	0.42 (1.09)	1.36 (3.52)
Northway	AK	242	35.89 (92.95)	3.38 (8.75)	39.27 (101.70)
Nuiqsut	AK	402	9.42 (24.40)	0	9.42 (24.40)
Nulato	AK	264	41.56 (107.65)	2.32 (6.01)	43.88 (113.66)
Nunam Iqua	AK	187	12.13 (31.42)	6.35 (16.45)	18.48 (47.87)
Nunapitchuk	AK	496	7.46 (19.31)	1.00 (2.59)	8.46 (21.90)
Ohogamiut	AK	0	8.96 (23.21)	0.025 (0.066)	8.98 (23.27)
Old Harbor	AK	218	20.53 (53.17)	5.99 (15.52)	26.52 (68.69)
Oscarville	AK	70	2.56 (6.64)	0.19 (0.50)	2.76 (7.14)
Ouzinkie	AK	172	12.95 (33.54)	1.92 (4.98)	14.87 (38.52)
Paimiut	AK	0	25.32 (65.58)	0	25.32 (65.58)
Pedro Bay	AK	42	17.05 (44.17)	2.25 (5.83)	19.31 (50.01)
Perryville	AK	113	11.15 (28.89)	0.020 (0.051)	11.17 (28.94)
Petersburg	AK	2,347	2.39 (6.19)	0.16 (0.42)	2.55 (6.61)
Pilot Point	AK	68	10.91 (28.26)	0.066 (0.17)	10.98 (28.43)
Pilot Station	AK	568	1.69 (4.38)	0.57 (1.47)	2.26 (5.85)
Pitkas Point	AK	109	1.54 (3.99)	0	1.54 (3.99)
Platinum	AK	59	25.67 (66.48)	1.60 (4.14)	27.27 (70.63)
Point Hope	AK	674	4.82 (12.48)	0.069 (0.18)	4.89 (12.66)
Point Lay	AK	189	28.51 (73.85)	3.78 (9.78)	32.29 (83.63)
Port Alsworth	AK	159	22.64 (58.65)	0.062 (0.16)	22.71 (58.81)
Port Graham	AK	177	6.39 (16.54)	0	6.39 (16.54)
Port Heiden	AK	102	50.63 (131.13)	0.39 (1.00)	51.02 (132.14)
Port Lions	AK	194	84.76 (219.52)	22.03 (57.06)	106.79 (276.58)
Portage Creek	AK	2	12.87 (33.34)	0	12.87 (33.34)
Rampart	AK	24	2.00 (5.17)	0	2.00 (5.17)
Red Devil	AK	23	25.13 (65.08)	2.70 (6.99)	27.83 (72.07)
Ruby	AK	166	7.63 (19.76)	0	7.63 (19.76)
Russian Mission	AK	312	5.58 (14.46)	0.36 (0.93)	5.94 (15.39)

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi² (km²)[2]		
			Land	Water	Total
Salamatof	AK	980	8.09 (20.95)	0.17 (0.44)	8.26 (21.39)
Sand Point	AK	976	7.70 (19.94)	0.17 (0.45)	7.87 (20.38)
Savoonga	AK	671	6.10 (15.79)	0	6.10 (15.79)
Saxman	AK	411	0.98 (2.53)	0	0.98 (2.53)
Scammon Bay	AK	474	0.63 (1.62)	0	0.63 (1.62)
Selawik	AK	829	2.93 (7.58)	1.18 (3.06)	4.11 (10.64)
Seldovia	AK	427	13.22 (34.24)	1.31 (3.38)	14.53 (37.62)
Shageluk	AK	83	11.09 (28.72)	1.34 (3.48)	12.43 (32.20)
Shaktoolik	AK	251	1.04 (2.70)	0	1.04 (2.70)
Shishmaref	AK	563	16.48 (42.68)	0.0012 (0.0032)	16.48 (42.68)
Shungnak	AK	262	8.92 (23.10)	0.996 (2.58)	9.92 (25.68)
Sitka	AK	4,480	2.64 (6.83)	0.35 (0.90)	2.98 (7.73)
Skagway	AK	967	82.07 (212.57)	4.46 (11.56)	86.53 (224.12)
Sleetmute	AK	86	21.14 (54.76)	5.24 (13.58)	26.39 (68.34)
Solomon	AK	0	3.44 (8.90)	5.24 (13.57)	8.68 (22.47)
South Naknek	AK	79	93.99 (243.44)	2.43 (6.30)	96.42 (249.73)
St. George	AK	102	34.75 (90.00)	147.55 (382.16)	182.31 (472.17)
St. Michael	AK	401	20.02 (51.85)	6.64 (17.19)	26.66 (69.04)
St. Paul	AK	479	39.98 (103.54)	2.32 (6.00)	42.29 (109.54)
Stebbins	AK	556	36.37 (94.20)	1.58 (4.10)	37.95 (98.30)
Stevens Village	AK	78	11.64 (30.14)	1.45 (3.75)	13.09 (33.89)
Stony River	AK	54	3.07 (7.96)	1.78 (4.62)	4.86 (12.58)
Takotna	AK	52	23.81 (61.68)	0	23.81 (61.68)
Tanacross	AK	136	79.37 (205.57)	1.64 (4.25)	81.01 (209.82)
Tanana	AK	246	11.04 (28.60)	4.64 (12.03)	15.68 (40.62)
Tatitlek	AK	88	7.26 (18.81)	2.80 (7.25)	10.06 (26.06)
Tazlina	AK	319	12.28 (31.81)	0.85 (2.21)	13.13 (34.01)
Telida	AK	3	1.68 (4.34)	0	1.68 (4.34)
Teller	AK	229	1.89 (4.89)	0.20 (0.52)	2.09 (5.41)
Tetlin	AK	130	182.99 (473.95)	10.93 (28.32)	193.92 (502.26)
Togiak	AK	817	49.74 (128.82)	83.21 (215.50)	132.94 (344.32)
Toksook Bay	AK	563	14.25 (36.91)	0.029 (0.076)	14.28 (36.99)
Tuluksak	AK	373	2.92 (7.57)	0.097 (0.25)	3.02 (7.82)
Tuntutuliak	AK	382	1.92 (4.96)	0.24 (0.63)	2.16 (5.59)

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]		
			Land	Water	Total
Tununak	AK	327	60.08 (155.60)	0.24 (0.62)	60.32 (156.22)
Twin Hills	AK	74	22.77 (58.98)	0.27 (0.69)	23.04 (59.67)
Tyonek	AK	177	12.65 (32.77)	0.66 (1.71)	13.31 (34.47)
Ugashik	AK	12	90.24 (233.73)	1.61 (4.17)	91.85 (237.89)
Unalakleet	AK	688	11.87 (30.75)	2.57 (6.66)	14.44 (37.41)
Unalaska	AK	4,376	83.17 (215.42)	2.34 (6.06)	85.51 (221.48)
Venetie	AK	149	12.00 (31.08)	0	12.00 (31.08)
Wainwright	AK	556	17.94 (46.46)	0	17.94 (46.46)
Wales	AK	145	2.53 (6.54)	0	2.53 (6.54)
White Mountain	AK	190	1.80 (4.67)	0.23 (0.60)	2.03 (5.27)
Wrangell	AK	1,189	0.90 (2.34)	0	0.90 (2.34)
Yakutat	AK	662	100.49 (260.26)	3.63 (9.41)	104.12 (269.67)

Hawaiian home lands

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]		
			Land	Water	Total
Anahola (Agricultural)	HI	257	0.80 (2.08)	0.0020 (0.0052)	0.80 (2.08)
Anahola (Residential)	HI	1,566	5.63 (14.58)	0.029 (0.074)	5.66 (14.65)
East Kapolei	HI	0	0.33 (0.86)	0	0.33 (0.86)
Haiku	HI	0	0.22 (0.58)	0	0.22 (0.58)
Hanapepe	HI	25	0.57 (1.47)	0	0.57 (1.47)
Homuula-Upper Piihonua	HI	3	96.91 (250.99)	0.0054 (0.014)	96.91 (251.00)
Honokaia	HI	0	5.03 (13.02)	0	5.03 (13.02)
Honokowai	HI	0	1.25 (3.23)	0.0054 (0.014)	1.25 (3.25)
Honolulu Makai	HI	13	0.036 (0.094)	0	0.036 (0.094)
Honomu	HI	6	1.19 (3.09)	0.019 (0.048)	1.21 (3.14)
Hoolehua-Palaau	HI	1,292	21.61 (55.96)	0	21.61 (55.96)
Kahikinui	HI	3	37.26 (96.50)	0	37.26 (96.50)
Kakaina-Kumuhau	HI	0	0.032 (0.084)	0	0.032 (0.084)
Kalaeloa	HI	10	0.90 (2.32)	0	0.90 (2.32)
Kalamaula	HI	300	7.95 (20.58)	0	7.95 (20.58)
Kalaupapa	HI	90	1.94 (5.03)	0	1.94 (5.03)
Kalawahine	HI	319	0.073 (0.19)	0	0.073 (0.19)
Kamaoa-Puueo	HI	14	17.59 (45.56)	0	17.59 (45.56)
Kamiloloa-Makakupaia	HI	85	5.08 (13.15)	0.062 (0.16)	5.14 (13.31)
Kamoku-Kapulena	HI	46	7.47 (19.35)	0.0024 (0.0063)	7.47 (19.36)
Kanehili	HI	0	0.11 (0.28)	0	0.11 (0.28)
Kaohe-Olaa	HI	0	1.06 (2.75)	0	1.06 (2.75)
Kapaa	HI	0	0.027 (0.070)	0	0.027 (0.070)
Kapaakea	HI	141	3.06 (7.92)	0	3.06 (7.92)
Kapolei	HI	0	0.14 (0.36)	0	0.14 (0.36)
Kaumana	HI	111	0.028 (0.073)	0	0.028 (0.073)
Kaupea	HI	1,387	0.085 (0.22)	0	0.085 (0.22)
Kawaihae	HI	407	15.99 (41.41)	0	15.99 (41.41)
Keahuolu	HI	0	0.24 (0.61)	0	0.24 (0.61)
Kealakehe	HI	759	1.11 (2.88)	0	1.11 (2.88)
Keanae-Wailua	HI	17	0.39 (1.00)	0	0.39 (1.00)
Keaukaha	HI	1,584	2.64 (6.83)	0	2.64 (6.83)
Kekaha	HI	483	0.081 (0.21)	0	0.081 (0.21)
Keokea	HI	24	3.85 (9.98)	0	3.85 (9.98)

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]		
			Land	Water	Total
Keoniki	HI	0	0.36 (0.94)	0	0.36 (0.94)
Kewalo	HI	261	0.020 (0.051)	0	0.020 (0.051)
Kolaoa	HI	0	0.75 (1.94)	0	0.75 (1.94)
Lalamilo	HI	64	0.39 (1.00)	0	0.39 (1.00)
Lanai City	HI	85	0.073 (0.19)	0	0.073 (0.19)
Leialii	HI	328	0.12 (0.30)	0	0.12 (0.30)
Lualualei	HI	58	0.71 (1.83)	0.046 (0.12)	0.75 (1.95)
Maili	HI	323	0.14 (0.36)	0	0.14 (0.36)
Makaha Valley	HI	4	0.37 (0.96)	0	0.37 (0.96)
Makuu	HI	113	3.44 (8.90)	0	3.44 (8.90)
Maluohai	HI	1,178	0.058 (0.15)	0	0.058 (0.15)
Moloaa	HI	6	0.54 (1.40)	0	0.54 (1.40)
Nanakuli	HI	5,370	3.61 (9.34)	0.0023 (0.0060)	3.61 (9.35)
Nienie	HI	0	11.09 (28.73)	0	11.09 (28.73)
Panaewa (Agricultural)	HI	664	2.65 (6.86)	0.0073 (0.019)	2.66 (6.88)
Panaewa (Residential)	HI	1,091	0.19 (0.49)	0	0.19 (0.49)
Papakolea	HI	1,215	0.19 (0.50)	0	0.19 (0.50)
Pauahi	HI	0	0.86 (2.24)	0	0.86 (2.24)
Paukukalo	HI	818	0.097 (0.25)	0	0.097 (0.25)
Pearl City	HI	99	0.037 (0.095)	0	0.037 (0.095)
Piihonua	HI	46	0.0081 (0.021)	0	0.0081 (0.021)
Ponohawaii	HI	21	0.0014 (0.0037)	0	0.0014 (0.0037)
Princess Kahanu Estates	HI	1,128	0.085 (0.22)	0	0.085 (0.22)
Pulehunui	HI	0	0.61 (1.59)	0	0.61 (1.59)
Puukapu	HI	898	18.85 (48.83)	0.019 (0.048)	18.87 (48.87)
South Maui	HI	0	0.35 (0.90)	0	0.35 (0.90)
Ualapue	HI	2	0.64 (1.66)	0	0.64 (1.66)
Upolu	HI	0	0.054 (0.14)	0	0.054 (0.14)
Waiahole	HI	27	0.029 (0.075)	0	0.029 (0.075)
Waiakea	HI	0	2.17 (5.61)	0	2.17 (5.61)
Waianae	HI	2,201	0.58 (1.50)	0	0.58 (1.50)
Waianae Kai	HI	609	0.039 (0.10)	0	0.039 (0.10)
Waiehu	HI	1,330	0.20 (0.53)	0	0.20 (0.53)
Waiku-Hana	HI	0	1.15 (2.98)	0	1.15 (2.98)

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]		
			Land	Water	Total
Wailau	HI	0	0.10 (0.26)	0	0.10 (0.26)
Wailua	HI	17	0.85 (2.20)	0	0.85 (2.20)
Waimanalo	HI	3,048	3.15 (8.17)	0	3.15 (8.17)
Waimanu	HI	2	0.32 (0.84)	0	0.32 (0.84)
Waimea	HI	0	23.56 (61.02)	0.0050 (0.013)	23.57 (61.04)
Waiohinu	HI	6	0.43 (1.12)	0	0.43 (1.12)
Waiohuli	HI	904	5.76 (14.92)	0	5.76 (14.92)

Oklahoma Tribal Statistical Areas

Legal/Statistical Area Description[1]	State(s)	Total population (2010)[2]	Native population (2010)[3]	Area in mi^2 (km^2)[2]		
				Land	Water	Total
Caddo-Wichita-Delaware	OK	14,782	2,000	1,027.10 (2,660.18)	10.89 (28.21)	1,037.99 (2,688.39)
Cherokee	OK	505,021	125,000	6,693.73 (17,336.68)	269.48 (697.95)	6,963.21 (18,034.63)
Cheyenne-Arapaho	OK	174,108	13,000	8,116.89 (21,022.65)	59.37 (153.76)	8,176.26 (21,176.42)
Chickasaw	OK	302,861	41,000	7,270.28 (18,829.94)	188.24 (487.55)	7,458.52 (19,317.49)
Choctaw	OK	233,126	48,000	10,602.33 (27,459.92)	283.99 (735.53)	10,886.32 (28,195.45)
Citizen Potawatomi Nation-Absentee Shawnee	OK	117,911	13,000	1,116.67 (2,892.15)	17.17 (44.46)	1,133.83 (2,936.61)
Creek	OK	758,622	99,000	4,628.71 (11,988.31)	157.34 (407.50)	4,786.05 (12,395.81)
Creek/Seminole joint-use	OK	2,041	500	65.19 (168.83)	0.32 (0.82)	65.50 (169.65)
Eastern Shawnee	OK	752		20.35 (52.70)	0.38 (0.99)	20.73 (53.69)
Iowa	OK	6,608		356.67 (923.76)	3.10 (8.02)	359.76 (931.78)
Kaw	OK	6,130		476.26 (1,233.51)	20.59 (53.33)	496.85 (1,286.83)
Kaw/Ponca joint-use	OK	27,111		108.73 (281.60)	1.71 (4.42)	110.43 (286.02)
Kickapoo	OK	19,921		249.55 (646.34)	2.51 (6.50)	252.06 (652.83)
Kiowa-Comanche-Apache-Fort Sill Apache	OK	197,781	16,000	6,353.02 (16,454.25)	75.92 (196.64)	6,428.94 (16,650.89)
Kiowa-Comanche-Apache-Ft Sill Apache/Caddo-Wichita-Delaware joint-use	OK	11,621	5,000	192.77 (499.26)	0.60 (1.56)	193.37 (500.82)
Miami	OK	268		27.71 (71.77)	0.36 (0.92)	28.07 (72.69)
Miami/Peoria joint-use	OK	4,401		12.44 (32.22)	0.17 (0.44)	12.61 (32.66)
Modoc	OK	292		6.24 (16.17)	0	6.24 (16.17)
Otoe-Missouria	OK	814		192.32 (498.11)	9.56 (24.76)	201.89 (522.88)
Ottawa	OK	5,919		23.41 (60.62)	0.58 (1.49)	23.98 (62.11)
Pawnee	OK	16,437		514.66 (1,332.96)	21.95 (56.85)	536.61 (1,389.81)
Peoria	OK	5,019		39.30 (101.79)	0.14 (0.36)	39.44 (102.16)

Legal/Statistical Area Description[1]	State(s)	Total population (2010)[2]	Native population (2010)[3]	Area in mi^2 (km^2)[2]		
				Land	Water	Total
Ponca	OK	2,100		163.63 (423.81)	3.32 (8.59)	166.95 (432.39)
Quapaw	OK	5,357		86.38 (223.73)	0.47 (1.23)	86.86 (224.96)
Sac and Fox	OK	57,450	8,300	739.15 (1,914.40)	11.02 (28.53)	750.17 (1,942.94)
Seminole	OK	23,441	5,700	567.65 (1,470.21)	7.32 (18.96)	574.97 (1,489.17)
Seneca-Cayuga	OK	4,294		72.35 (187.38)	10.92 (28.27)	83.26 (215.65)
Tonkawa	OK	4,056		142.51 (369.10)	1.05 (2.73)	143.56 (371.83)
Wyandotte	OK	1,672		32.59 (84.41)	1.52 (3.94)	34.12 (88.36)

State Designated Tribal Statistical Areas

A **State Designated American Indian Reservation** is the land area designated by a state for state-recognized American Indian tribes who lack federal recognition.

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi^2 (km^2)[2]		
			Land	Water	Total
Adais Caddo	LA	2,517	146.27 (378.85)	1.84 (4.77)	148.12 (383.62)
Apache Choctaw	LA	6,000	85.61 (221.73)	1.02 (2.63)	86.63 (224.37)
Beaver Creek	SC	1,153	25.07 (64.94)	0.10 (0.27)	25.17 (65.20)
Cher-O-Creek	AL	83,668	322.25 (834.62)	1.12 (2.89)	323.37 (837.52)
Cherokee Tribe of Northeast Alabama	AL	12,732	33.97 (87.99)	0.15 (0.38)	34.12 (88.37)
Chickahominy	VA	3,443	51.85 (134.29)	0.025 (0.065)	51.88 (134.36)
Clifton Choctaw	LA	415	48.81 (126.42)	0.10 (0.27)	48.92 (126.70)
Coharie	NC	56,432	241.59 (625.71)	3.05 (7.89)	244.63 (633.60)
Eastern Chickahominy	VA	179	2.23 (5.78)	0	2.23 (5.78)
Echota Cherokee	AL	53,622	509.06 (1,318.46)	3.02 (7.83)	512.08 (1,326.29)
Four Winds Cherokee	LA	30,286	218.89 (566.91)	2.00 (5.17)	220.88 (572.08)
Haliwa-Saponi	NC	8,102	177.03 (458.50)	0.46 (1.19)	177.49 (459.69)
Lenape Indian Tribe of Delaware	DE	545	2.25 (5.82)	0	2.25 (5.82)
Lumbee	NC	490,899	1,817.16 (4,706.43)	8.51 (22.04)	1,825.67 (4,728.46)
MaChis Lower Creek	AL	21,818	668.20 (1,730.64)	2.58 (6.67)	670.78 (1,737.31)
Meherrin	NC	7,956	32.62 (84.49)	0.45 (1.16)	33.07 (85.65)
Nanticoke Indian Tribe	DE	7,059	27.69 (71.72)	0.085 (0.22)	27.78 (71.95)
Nanticoke Lenni Lenape	NJ	5,652	19.16 (49.62)	0.25 (0.64)	19.41 (50.26)
Occaneechi-Saponi	NC	8,615	93.61 (242.45)	1.68 (4.35)	95.29 (246.80)
Pee Dee	SC	2,915	50.97 (132.02)	0.71 (1.83)	51.68 (133.86)
Ramapough	NJ	847	7.15 (18.53)	0.10 (0.26)	7.25 (18.79)
Santee	SC	492	7.68 (19.89)	0	7.68 (19.89)
Sappony	NC	2,372	43.00 (111.36)	4.08 (10.56)	47.07 (121.91)
Star Muskogee Creek	AL	5,377	112.64 (291.73)	0.31 (0.81)	112.95 (292.54)
United Cherokee Ani-Yun-Wiya Nation	AL	5,869	8.43 (21.84)	0.83 (2.15)	9.26 (23.99)
United Houma Nation	LA	203,077	582.01 (1,507.40)	24.89 (64.46)	606.90 (1,571.86)
Upper South Carolina Pee Dee	SC	1,325	39.38 (101.99)	0.035 (0.091)	39.41 (102.08)
Waccamaw	SC	24	1.28 (3.32)	0.0042 (0.011)	1.29 (3.33)
Waccamaw Siouan	NC	2,113	45.36 (117.47)	0.033 (0.085)	45.39 (117.56)

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi² (km²)[2]		
			Land	Water	Total
Wassamasaw	SC	2,011	8.84 (22.90)	0	8.84 (22.90)

Tribal Designated Statistical Areas

A **Tribal Designated Statistical Area** is a statistical entity identified and delineated for the Census Bureau by a federally recognized American Indian tribe that does not currently have a federally established Indian reservation.

Legal/Statistical Area Description[1]	State(s)	Population (2010)[2]	Area in mi² (km²)[2]		
			Land	Water	Total
Cayuga Nation	NY	2,715	37.85 (98.02)	35.62 (92.26)	73.47 (190.29)
Ione Band of Miwok	CA	5	2.12 (5.49)	0	2.12 (5.49)
Mechoopda	CA	3,106	1.31 (3.40)	0	1.31 (3.40)
Samish	WA	36,727	224.63 (581.80)	543.56 (1,407.81)	768.20 (1,989.62)

See also

United States

- List of federally recognized tribes
- List of federally recognized tribes by state
- State recognized tribes in the United States
- List of unrecognized tribes in the United States
- Native Americans in the United States
- List of Alaska Native tribal entities
- List of largest Indian reservations in the United States
- List of historical Indian reservations in the United States
- National Park Service Native American Heritage Sites
- Outline of United States federal Indian law and policy
- State recognized tribes in the United States
- Off-reservation trust land
- Native Americans and reservation inequality

Canada

- List of First Nations governments
- List of First Nations peoples
- List of Indian reserves in Canada

References

1. Geographic Identifiers, 2011-2015 American Community Survey 5-Year Estimates, *American Factfinder* (https://factfinder.census.gov/)
2. Geographic Identifiers, 2010 Census Summary File 1, *American Factfinder* (https://factfinder.census.gov/)
3. Native people 'alone' or 'in combination'

- "Geographic Terms and Concepts - American Indian, Alaska Native, and Native Hawaiian Areas" (https://www.census.gov/geo/reference/gtc/gtc_aiannha.html). U.S. Census Bureau. 2010. Retrieved 7 November 2013.

HUMANITARIAN PROJECT FUNDING PROPOSAL FOR COOPERATIVE INDUSTRIAL HEMP FIBER PRODUCTION

Hemp Fiber Production building products ... **Exhibit H**

HEMP PRODUCT REVIEW HEMP PRODUCTS

73 Real Life Amazing Hemp Products To Try Today

MINISTRY OF HEMP

JANUARY 3, 2017 1:02 PM

12 COMMENTS

"American farmers are promised a new cash crop… and it will provide thousands of jobs for American workers throughout the land"

– Popular Mechanics in 1938

How much do you know about hemp?

An article published in Popular Mechanics in 1938 claimed hemp as the *New Billion-Dollar Crop*. Claiming to have thousands of potential applications, there seemed to be no limit on how and where hemp could be used.

Yet, not even a year after this publication, the government passed restrictions on hemp that essentially killed the entire industry. For the next 80 years, hemp has largely been forgotten and misunderstood.

Sadly, today most of us don't even know about hemp. We grew up never learning about it or even using it. The modern society never got the chance to experience the amazing quality and benefits that hemp brings. Many people mistakenly assume it's the same thing as marijuana (close, yet distinct, cousin). Others aren't even aware of its existence.

So what is hemp and what can it do? To show the true potential of hemp, we've created an extensive, all-encompassing list of hemp products that exists today. Although some of these applications may not yet be fully commercialized, most of these items can be purchased online through various boutique brands. Many hemp advocates are fighting to offer customers high quality, eco-friendly hemp products that are superior to its conventional counterparts.

Check out our full list below and see what hemp has to offer. One thing that's clear is that as more people start using hemp, its misconstrued stigma will more quickly disappear in the modern world. We hope you'll try some. You'll be surprised how awesome they are.

HEMP PRODUCTS LIST: CATEGORIES

- Foods & Drinks
- Clothing & Accessories
- Beauty & Skin
- Health
- Pets
- Automobiles
- Home & Office

- Farming & Gardening
- Industrial & Others

Foods & Drinks

1. Hemp Seeds

Hemp seeds are probably the most popular application of hemp because it's so nutritious. Popular among vegetarians and athletes, hemp seeds are often compared to flax and chia seeds as superfoods. Here's just a short list of some of its amazing health benefits:

- One of the most nutritious foods available in nature.
- Easily digested by the body.
- Can sustain our dietary needs, even without consuming any other healthy food.

- Contains essential fatty acids (Omega-3 and Omega-6) – helps with immune system and cholesterol levels.
- Helps heal those suffering from immune deficiency diseases.
- A superior vegetarian source of protein.

Learn about the top hemp seed brands on Amazon

2. Hemp Seed Oil

While hemp offers different types of oil, hemp seed oilis the most common dietary application you will find. Hemp seed oil comes from the seeds of the plant itself. When the oil is unrefined, it is commonly considered *"Nature's most perfectly balanced oil"*. Here's why:

- It contains a perfectly balanced 3:1 ratio of Omega 6 and Omega 3 essential fatty acids.
- Great source for Vitamin A & E.
- Includes number of minerals such as calcium, magnesium, sulfur, potassium, phosphorus, iron, and zinc.
- Has amazing skin care properties.
- Promotes healthy hair and nails, while reducing inflammation.

Learn which brands sell hemp seed oil online: Top Hemp Seed Oil Brands Online

3. Protein Powder

Hemp protein is one of the most popular vegetarian protein powders among active athletes. Derived from hemp seeds, hemp protein promises an average of 15 grams of protein per serving – that is the highest vegan source of simple protein available!

Hemp protein is a great way to increase your daily protein intake, especially for those who are lactose intolerant or have difficulty digesting whey protein.

Top 6 Things To Consider Buying Hemp Seed Protein

4. Hemp Tea

Blending your teas with hemp seeds allows you to enjoy your favorite teas while adding hemp seeds' amazing nutrition to your drink. Brands like Hemp Kettle Tea offer a variety of choices for its customers, as they offer mixtures such as Jasmine, Cardamom, and Holy Basil teas.

5. Energy Bars

Do you need an energy bar that'll keep you stomach satisfied until your next meal? Hemp energy bars are know to use the highest quality ingredients that allows you to snack healthy. Brands like Ever Bar only use organic ingredients like hemp seeds, hemp protein powder, cranberry, blueberries to keep you going for hours!

6. Coffee

Hemp coffee beans are made from ground coffee beans + lightly roasted hemp seeds. The blend of toasted hemp seeds with roasted coffee beans offers a nutty tasting coffee while adding "a vibrational frequency not found in other worldwide coffees with considerably less caffeine and countless vitamins and minerals."

7. Burgers

Ever tried vegetarian burger patties and thought they were tasteless and bland?

Hemp seed based veggie burgers are now offering a better solution.

Good Seed Burger developed protein-packed veggie burgers based off hemp seeds as the main ingredient. It also contains superfoods like chia seeds, wild-crafted seaweeds and sprouted beans & grains. Enjoy the savory, nutty flavor, the warm earthy complexity and the hit of mild spice.

8. Healthy Flavored Water

Hemp's version of Vitamin Water – Hemp2O. This herbal water is packed with vitamins B3, vitamin B5, vitamin B6, vitamin B12, vitamin C and Omega 3. It contains all of the essential amino-acids which help support muscle growth and is low in saturated fats. Using only organic ingredients, Hemp2O has antioxidant properties, fatty acids, and is completely gluten-free!

See where you can get one near you: Store Finder

9. Hemp Seed Butter

Just like there's peanut butter, almond butter – try hemp seed butter! Made from finely ground and pressed form of hemp seeds, hemp seed butter offers amazing nutritional benefits.

10. Hemp Milk

Similar to almond milk, hemp milk is made from grinding hemp seeds with water. Having a strong nutty taste, this milk won't be everyone's favorite. But it does offer a healthy alternative for those looking for alternative milks other than dairy.

11. Hemp Vodka

Colorado Gold Distillery developed a the first US vodka that is fermented and distilled with hemp. With a 40% alcohol content, critics claim it to be a smooth and mellow drink. One reviewer says *"A smooth, character rich vodka with appealing fruitiness."*

12. Hemp Beer

A California brewery offers a brown ale brewed with toasted hemp seeds – the Humboldt Hemp Ale. Not sure if it'll be good? In the Great International Beer & Cider Competition, the Hemp Ale won Silver in the American Brown Ale category in 2014.

If you're interested in trying it out, check out where you can find it near you: Find Store/Brewery

13. Hemp Hot Dogs

In the Kentucky State Fair in 2016, Victory Hemp Foods partnered with local vendors and authorities to develop and sell Hemp Dawgs. David Neville, a cattle farmer who worked on this project, says that there's three main hemp ingredients to the hot dog:

- Hemp protein acts as an adhesive of making all the parts stay together.
- Ground up hemp seeds add texture to the bite.

- Hemp oil melds flavor and adds smoothness.

Overall, this version of a hot dog offers health benefits like Omega 3 and Omega 6 heart-healthy fats.

14. Hemp Flour

Hemp Seed Flour is gluten free, nutritious, and an excellent source of energy. The Seed Flour contains 33% protein and is second only to soy in protein content. An added benefit is that Hemp Seed Flour protein is more easily digested. Hemp flour is perfect for those who have nut, dairy, gluten or wheat allergies.

15. Hemp Granola

Is there a healthier treat than granola? You can easily make this at home or buy some online. It's probably the healthiest granola you'll ever try!

Clothing & Accessories

Why use hemp clothing? Hemp fabric has proved to be superior to its counterparts in almost every way. Hemp fiber is more…

- Porous and breathable – Hemp fibers allow your skin to breathe.
- Durable – Hemp fiber is the most durable fiber of any plant.
- Eco-friendly & Sustainable – Cotton is a water-intensive crop and uses 25% of the world's pesticides. Hemp requires 50% less water to grow than cotton and requires no use of pesticides.

16. Shirts

Most hemp shirts available on the market are mixed with a little bit of organic cotton. It's typically a 60% Hemp / 40% Cotton mix. They're some of the most durable shirts you'll ever try:

- SuperEgo
- ONNO
- Patagonia

17. Jeans

Imagine using hemp fiber for jeans. It's durable, breathable, absorbent, and has amazing anti-microbial properties.

18. Hemp Shoes

Every year, on April 20th (4/20), leading national brands come out with limited hemp shoes. There's actually various brands that now offer hemp shoes, ranging from boarder shoes to Converse.

Here's an edition from Adidas:

19. Hemp Jacket / Coat

Hoodlamb offers a wide array of jackets and coats made from hemp. They're obviously not made with 100% hemp fiber, but using hemp allows them to make a more durable product while also being more sustainable than other brands.

20. Backpacks

Have you ever had backpacks that just broke or tore after a couple years? Try hemp backpacks and they'll last you 10+ years. Using one of the strongest fabrics, hemp backpacks offer you a durable, sustainable product you can carry around anywhere.

21. Yoga Pants

Mixing hemp fabric with some organic cotton offers elasticity. Hemp yoga pants can be used for your stretching, meditation, or even pajama wear!

22. Sunglasses

This is probably one of the coolest applications developed with hemp hurds. Developed by designers in Scotlad, Hemp Eyewear uses 100% completely sustainable ingredients to make their products. Not only are the glasses fashionable, they ship their products in a case made from hemp as well.

23. Hats

Whether its a wide brim hat or your sports cap, they can all be made from hemp. Botique brands like Tinlid Hats offers hemp hats, along with a variety of other types made from sustainable ingredients.

24. Hemp Beanie

Need to keep your head warm over the winter months? Know that you can rely on hemp beanies!

25. Wallets

The Hemp Denim wallet developed by Hemp Co-Op is one of the coolest looking hemp wallets on the market. Considering how strong hemp fiber is, we're sure these will last you for a while.

26. Socks

Ever get sick of socks getting holes in them? Try your luck with hemp socks. Much more durable than cotton, we're sure they'll last you much longer.

27. Totes

There's a big push to use totes and other reusable bags when you go grocery shopping. Why not use bags that are sustainable themselves? Hemp totes are made of 100% hemp, and hemp as a plant is one of the most sustainable plants in the world.

28. Sandals (Flip Flops)

With the top soles and straps made from hemp, these sandals are the most naturally durable flip flops you'll find on the market.

29. Belts

Might not be the best option for professional attire, but hemp belts go great for casual wear. Pick one up for your jeans.

30. Scarf

Hemp scarfs are lightweight, yet warm and cozy. They're not as thick as wool scarfs, but a good option for those living in milder weather.

31. Ties / Bow Ties

Yup, you can even make ties with hemp. Seriously, it can do anything.

32. Handkerchief/Pocket Squares

Nobody really uses handkerchiefs anymore, but they sure look fashionable as pocket squares for your suit. Check out these 100% organic hemp pocket squares: Haute Hemp Co

33. Bracelets

Making hemp bracelets used to be super popular for kids. The ropes (for the bracelets) were essentially indestructible and you could do so many things with them. When you mention hemp to somebody who doesn't know much about it, you'll find many of them first think of hemp bracelets that they made when they were young.

34. Robes

In Japan, the incoming emperor wears a hemp robe during the Shinto coronation ceremony. Not to prove a political point, but to symbolize the plant's values of abundance, comfort, and health.

35. Overalls

If you're into overalls, yes, you can find hemp made overalls.

Beauty & Skin

What makes hemp skin and body care products better than conventional products? Here's just a couple reasons:

- Hemp oil based beauty products offer superior ratio of Omega 3 to Omega 6 fatty acids compared to other oils (Omega 3 is great for smoothing and firming our skin.)
- Hemp oil is packed with vitamins – Vitamin B, C, E to state just a few
- Key amino acids in hemp oil prevent wrinkles and allow the skin to retain more moisture. They also help conditions like dry skin, eczema, or psoriasis by moistening your skin.

Here's a full list of hemp body care products you can try:

36. Body Lotion

One of our favorite and most trusted brands. Free of any harmful chemicals, the Fay Farm's healing body lotion feels gentle on the skin and soaks in quickly. It feels like mousse! Specifically, hemp lotions are great for conditions such as:

- Eczema, psoriasis, contact dermatitis, and other auto-immune skin disorders.
- Burns, bug bites, athlete's foot, ringworm, and dry, damaged skin.

37. Balms / Lip Balms

Hemp balms offer an even stronger solution that lotions. Get Hemp Butter's hemp balms easily penetrates the top layer of skin for the absorption of nutrients.

38. Shampoo & Conditioner

Have you ever looked at the ingredients list of your shampoo bottle? You probably couldn't recognize more than half of the ingredients on that list! Hemp boutique brands, like The Wonder Seed, are using only natural formula to offer your hair only honest materials.

39. Body Wash

Hemp is used in soaps because of its unsurpassed essential fatty acid (EFA) content, which also makes the soaps smoother and less drying. Dr. Bronner's is the leading soap brand that uses hemp. They've been around for over 100 years and are a popular choice as they use all organic and sustainable ingredients.

Guess what's in their soap? Less than 10 ingredients. Awesome.

40. Facial Cream & Cleanser

If your skin is sensitive and prone to acne, hemp oil might be your savior. Some people just buy hemp seed oil and apply it on their face daily. But it might not be that pleasant applying nutty hemp seed oil directly on your skin. If that's the case, check out some top hemp body care brands for your face:

- The Wonder Seed
- Hemp 360
- BC Bud

41. Hemp Sunscreen

Sunscreen that uses only natural ingredients. Check out Raw Elements – Non-GMO and uses hemp oil.

42. Hemp Serum

Hemp serums can be great to help with more serious conditions, such as psoriasis on the scalp, eczema on the face, or sebborheic dematitis on the face. The serum is specially effective as the oil quickly soaks into your skin and scalp, allowing you to experience complete absorption relieving itchy and flaky scalp. The nature of hemp oil also prevents the oil from getting your skin or hair greasy.

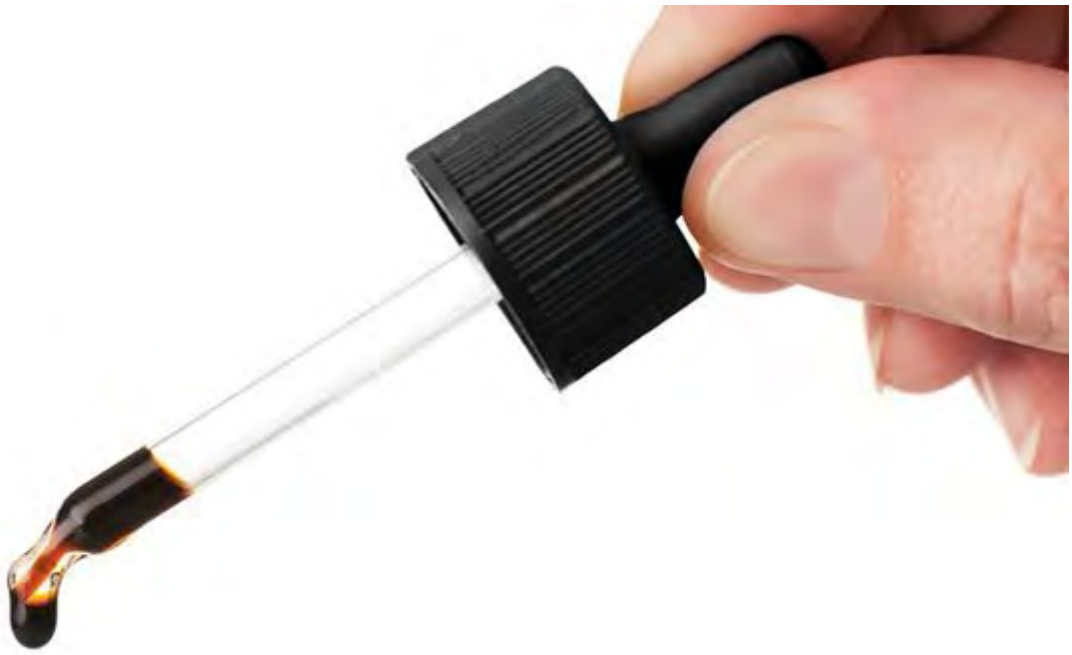
Health

The first documented use of hemp as “medicine” appears about 2300 B.C.E. in China, when an emperor prescriped hemp for the treatment of constipation, gout, and menstrual problems. Since then, records of using hemp (and overall cannabis) as medicine has appeared across variety of different civilizations,

including India, Egypt, Persia, Europe, and even during the early days of the United States.

Here's just a few examples of different hemp products that you could use today:

43. Hemp Extract (CBD)



Hemp extracts are naturally found compounds in the leaves of hemp. CBD (Cannabidiol) is one of the better known compounds, but there's more than 80 different compounds that can be found in hemp.

Dr. Raphael Mechoulam from Israel is the leading scientist who pioneered the research behind these extracts. You can learn more about him through his documentary: The Scientist.

According to a patent held by the US Health and Human Services:

"Cannabinoids have been found to have antioxidant properties, unrelated to NMDA receptor antagonism. This new found property makes cannabinoids useful in the treatment and prophylaxis of wide variety of oxidation associated diseases, such as ischemic, age-related, inflammatory and autoimmune diseases. The cannabinoids are found to have particular application as neuroprotectants, for example in limiting neurological damage following ischemic insults, such as stroke and trauma, or in the treatment of neurodegenerative diseases, such as Alzheimer's disease, Parkinson's disease and HIV dementia.

With the passage of the Industrial Hemp Farming Act in 2014, CBD is now legal to be sold in all 50 states in the US.

Check out the top online hemp brands review.

44. Hemp Essential Oil

Even more rare than hemp extracts, hemp essential oil is made by steam distilling the upper leaves and flowers of the hemp plant. This captures the pure essence of the plant. Pale yellow to light green in color with a a highly concentrated therapeutic aroma. It takes over fifty pounds to make 1 ounce of hemp essential oil.

It is also one of the most expensive oils in the world – and contains no THC or CBD. Hemp essential oil is well known for its essential oil aroma and therapeutic abilities on the central nervous system. There are so many different ways to use hemp essential oil to help relieve anxiety and sleep issues. The oil may be used in diffusers – added to hot steamy bathwater, mixed with carrier oils for massages. Kushed, a boutique brand based out of California, uses hemp essential oil by blending it with other pure essential oils to create natural remedies for those caught up in the busy modern day lives.

45. Soothing Aromatherapy Candles

Kushed, a boutique brand based in California, has developed aromatherapy hemp candles made from hemp essential oil. They're perfect to use in the evenings to relax your body.

46. Massage Oil

We've already discussed how great hemp oil is as a body wash or even as lotion. That's because hemp oil has properties that help make your skin smoother and less dry. Now using that type of oil as a massage oil can definitely make your massages even better. Try it out.

47. Hemp Heat Muscle Rub

Early research and testimonials have shown that Cannabidiol (CBD) can help with joint pains and arthritis. So making a heat muscle rub that has CBD in it only makes sense! These heat muscle rubs just might be the joint pain reliever you were looking for.

48. Vape Juice

Fan of smoking? If you already own your own vape pen, go ahead and try out vaping hemp extracts. Some say vaping might be the most effective way to experience the benefits of CBD.

Pets

49. Dog Toys

If your dog chew up and destroy his toy in a matter of days, hemp toys might just be what you were looking for. Hemp ropes are one of the most durable material out there. We'd be surprised if your dog can breat it.

50. Dog Collar & Leash

Owning a puppy (especially a big puppy) can be a pain. She'll chew on the leash and pull like crazy. It's not uncommon for your leash to start getting torn. Hemp leashes and collars can solve that problem. Hemp ropes are so durable that the US government actively tried to buy as much as they can during World War II.

51. Animal Bedding

Using hemp hurds for animal bedding can have many benefits. Hemp is extremely absorbent as it can hold 4X its own weight, and lasts much longer than pine or straw bedding. Hemp bedding is very low dust, which is great for horses with respiratory issues. It also reduces odor better than straw or wood shavings. This is great for chicken owners, who often incur ammonia from the chicken scat.

Hemp bedding is very economical for the farmers, as it lasts longer and reduces the products loss to waste. This, in turn, saves the consumer money. Lastly, hemp bedding is completely biodegradable. It naturally decomposes into the earth.

52. CBD Oil For Dogs (Pet Tinctures)

Early research has shown that CBD could help with conditions such as anxiety, addiction, depression, chronic pain, arthritis, seizures, and more for humans. Due to the similar anatomy of mammals, we can infer CBD could also help our dogs. Early research and anecdotal testimonials show that CBD has helped pets

in many different ways, including anxiety, appetite, arthritis, cancer, and variety of phobias.

Learn more about using CBD to treat your pets.

Automobiles

In 1941, Henry Ford built a car out of hemp. It was not only built out of hemp plastic, but it also ran on hemp fuel. Hemp plastic was tested to be much stronger than steel. They tried denting the hemp car with a hammer, but the car didn't even budge. Learn how we're using hemp in cars today:

53. Sports Cars

An entrepreneur in Florida built a sports car out of hemp. Called the Renew Sports Cars, this hemp car comes out to be 4.7X greener than even an electric car. Similar to Henry Ford's car, this car's exterior is all made from hemp plastic and it runs on hemp biofuel.

54. Biofuel

The greatest thing about hemp biofuel is that it can be used in cars that currently used regular oil. Unlike electric cars, nobody needs to buy new cars. We can use our existing infrastructure!

According to Thomas B. Reed, a chemical engineer at Colorado School of Mines, an acre of hemp can produce power equivalent to a thousand gallons of gasoline. Imagine the sustainability benefits that would bring. No wonder oil companies hate hemp.

55. Thermoset Compression Molding

Thermoset compression molding is currently producing car panels and other parts for several global auto manufacturers. A Mercedes car panel is made using this technology. The process involves taking a sheet of the hemp fiber matting, injecting it with thermoset resin, placing into a mold, heating it to high temps for a set amount of time, then popping the panel out of the mold for cleanup and final drilling/cutting. Currently, Mercedes, BMW, and Audi are few of the auto companies that are using this in their vehicles.

Home & Office

56. Pens

Green Spring Technologies makes these customized pens made from hemp molds. You can engrave anything on it!

57. Hemp Sheets

Hemp fiber is typically more porous and breathable than cotton. So hemp sheets might be the perfect material for summer sheets. They might not be as smooth as cotton, but they'll surely last you longer than cotton sheets.

58. Hemp Towel

What's so great about hemp fiber is that the fiber softens with age while being mildew resistant. This makes hemp an excellent source for materials such as a towel.

59. Paper

Why is hemp paper better than tree paper? Here's just a few reasons

- 1 acre of Hemp can produce as much paper as 4-10 acres of trees over a 20 year cycle.
- Hemp stalks grow in 4 months, whereas trees take 20-80 years.
- Trees are made up of only 30% cellulose, requiring the use of toxic chemicals to remove the other 70%. Hemp, on the other hand, can have have up to 85% cellulose content.
- Hemp paper is more durable than trees. Unlike regular paper, hemp paper does not yellow, crack, or deteriorate over time.
- Wider use of hemp paper can help sustainability efforts to reduce deforestation.

60. Hemp Curtains

If you can make towels and sheets with hemp, why not curtains?

61. Laundry Detergent

Dr. Bronner's 18-in-1 Hemp Pure-Castille Soap has been proven to be as effective in cleaning your clothes as other conventional brands. The added benefit of Dr. Bronner's is that it is non-toxic and hypoallergenic.

62. Hemp Crafts

You can get hemp cords, spools, twines, and braided ropes. Your basics for craft day.

63. Hemp Chair

From our research, we don't think there's actually a brand that sells hemp chairs today, but a natural fiber hemp chair was developed for a design show in 2012. It can be done!

64. Tablecloths

Mildew resistant, durable, and high quality material – hemp fiber is perfect for your next table cloth.

65. Hemp Blankets

Looking for a breathable summer blanket? Hemp fiber could be the perfect material you were looking for! Hemp blankets can help alleviate the intensity of night sweating (aka “hot flashes”) and also help with skin disorders like rashes/eczema.

Farming & Gardening

66. Hemp Growing Mats

Typical growing mats are made from plastics or treated materials. This can be a bit concerning when you consider the hungry, tender roots soak up whatever they are grown in.

Try hemp mats from Grass Roots Grow Mats that are petroleum, plastic, and chemical free! Grow your roots in a healthy environment for a healthier you.

67. Soil Cleanup

Conventional crops (soy, corn, wheat, etc) deplete the nutrition of our soil, causing it to dry out and erode. Hemp can be a natural solution for our farmers, as its deep roots help stabilize the soil structure. Since hemp plants grow 6-16 ft tall in 110 days, hemp also naturally shades out weeds. This eliminates the need of costly and toxic herbicides.

In any contaminated soil, hemp also actively absorbs heavy-metal contaminants from soil, gradually purifying the earth.

Industrial & Others

68. Ropes

During World War II, the government needed more raw material to make strong, durable ropes. Their oversea supply had been cut off during their engagement with Japan. This is when the government created a campaign called *"Hemp For Victory"*, encouraging US farmers to start growing hemp to help with the war. The United States Department of Agriculture (USDA) even created a promotional video to highlight the benefits of hemp fiber! Check it out below:

69. Plastics

Hemp plastic could do anything that conventional plastic can do. The biggest problem using hemp plastic commercially is that it's cost prohibitive. Since farming is still largely regulated, hemp is still in short supply.

Yet, it's important to know that hemp plastic is much more durable and sustainable. As we've discussed earlier, hemp plastic could be used to make cars

(more durable than steel), sunglasses, pens, and more!

You could even use hemp filaments in a 3D printer to print out whatever you design.

70. Building Homes – Hempcrete

Building homes with hemp is one of the most promising applications of hemp. There's several benefits that hempcrete offers. First, it acts an amazing thermodynamic insulator, so it helps to reduce the energy costs by 50–70% annually for families (especially those in extremely cold or hot climates).

Hempcrete is also great for those who are sensitive to allergies. Regular insulators and paint can be the prime source of allergies for many people, as these conventional materials can be toxic. Made with all natural material, can eliminate many different health problems.

Hempcrete also continuously absorbs CO2 as it ages, so it reduces your carbon footprint. As it absorbs CO2, the material actually becomes stronger. Essentially,

a building made with hempcrete will become stronger over time.

When it comes to construction, hempcrete homes have zero construction waste. When you consider that 55% of the world's energy consumption is construction-waste related, there are huge implications on reducing our carbon footprint.

Other applications of hemp for homes are soundproof hemp walls and bash-proof hemp roofing.

71. Oil Spill Cleanup

Hemp's core has been found to be carrier of microorganisms for bioremediation. Bioremediation describes the microorganisms living in the hemp breaking down the oil by actually feeding off of it, metabolizing it, and releasing it back into the water or soil without the toxins.

This article has a great writeup about how hemp could be used to clean up and prevent oil spills in the future: *Here's how hemp could be used to clean up oil spills!*

72. Hemp Flags

Did you know the first American flag made by Betsy Ross was made from industrial hemp? Hemp fiber can make durable, rustic flags. Patagonia actually developed a short documentary featuring a military veteran working with hemp to make a US flag:

12:39

73. Hemp Batteries

Hemp fibers have been found to be more conductive than graphene, making it a superior source for supercapacitors and batteries. Dr. David Mitlin found that hemp "works just as well [as graphene]. And it costs a fraction of the price [at] $500 to $1,000 a tonne." *Read More*

FINAL THOUGHTS

Hemp was once praised to have thousands of different potential applications. Considering that, we are still at the infancy of realizing what all hemp can do. With the passing of the Industrial Hemp Act in 2014, our farmers have started to grow hemp again in the US after 77 years of prohibition. As the supply and awareness of hemp continue to grow, innovation will only accelerate. With the world focused on sustainability and curbing our carbon footprint, hemp can be at the forefront of many eco-friendly practices.

We look forward to seeing the difference hemp can make in our world.

individual / family greenhouse(s) to germinated plants **Exhibit I**

Greenhouse Management (/magazine/) / January 2017 (/magazine/issue/january-2017)

Understanding greenhouse structural loads

Departments - Tech Solutions

January 4, 2017

John W. Bartok Jr. (/author/2411)

If snow is wet and heavy, just 3 to 4 inches of it equals the weight of 1 inch of rain, which will load a structure with 5.2 psf.
Photo: John Bartok, Jr.

With the hurricanes along the East Coast and in the Northwest this past fall, and the prediction of heavy snow in some areas this winter, growers frequently question the load that their greenhouses will withstand.

All buildings, including greenhouses, headhouses and storage buildings are affected by external and internal loads. These loads are transferred through the frame members and foundation to the ground. Loads are commonly classified as dead loads, live loads, snow loads, wind loads and in some locations, earthquake loads.

Dead loads

Dead loads are gravity loads that are constant in magnitude throughout the life of the building. They include the walls, roof, glazing and fixed equipment. Fans, suspended heaters and overhead piping for water or heat are also considered a dead load, as they are permanently attached to the structure. Long-term crops, such as tomatoes or cucumbers that are suspended from the trusses, are frequently identified as a dead load. Short-term crops, such as hanging baskets, are normally considered a live load.

Values for wind uplift must not exceed the dead load of the structure, otherwise the structure could be lifted out of the ground. This can occur occasionally to hoophouses that only have the pipes driven 18 to 24 inches into the soil. These structures weigh very little, and the hoop shape acts like an airplane wing that tends to create uplift when the wind passes over it.

Live loads

Live loads are more difficult to calculate, as they can change. One common live load is a maintenance crew repairing glazing on the roof. Another is a trolley conveyor that moves plants into the greenhouse. The carrier full of plants weighs 200 to 300 pounds. This is a concentrated

load that moves as the conveyor is pushed along. The National Greenhouse Manufacturers Association (NGMA) design guidelines recommend that purlins, rafters and trusses be designed to support a minimum concentrated load of 100 pounds at midspan.

Short-term plant loads are considered live loads. NGMA recommends that these be limited to a maximum of 15 pounds/square foot (psf). A crop of 10-inch hanging baskets could add from 3 to 5 psf.

Wind loads

Loading from the wind can come from any direction, but is usually considered to act in a horizontal direction against the walls. Basic wind speeds for design are 90 miles/hour (mph) for most of the U.S., except the West Coast — which uses 85 mph — and the east and southeast coasts where hurricanes are common. There, loads vary from 90 to 150 mph depending on the distance from the coastline.

The basic wind speed is adjusted for factors such as site exposure; height and shape of the building; roof slope; and use factor. Greenhouses and sales buildings that are open to the public have a higher use factor than a production greenhouse. The above factors are applied to the wind velocity to get a wind load. Structural member size and resistance to overturning are then calculated.

During heavy wind conditions, doors and vents should be closed to reduce the double effect of external wind pressure and the force of the wind that gets in through the openings.

Snow loads

Snow loads vary considerable from 0 psf along the south coast of the U.S. to more than 100 psf in northern Maine and in some of the higher mountain areas. Local building codes specify the design snow load.

Snow can be light and fluffy with a water equivalent of 12 inches equal to 1 inch of rain. It can also be wet and heavy with 3 to 4 inches, equal to the weight of 1 inch of rain. Snow having a 1-inch rainwater equivalent will load a structure with 5.2 psf. This amounts to about 6.5 tons on a 25 x 96-foot greenhouse.

Diagonal bracing should be included in all greenhouses to prevent racking of the frame.
Photo: John Bartok, Jr.

Design snow loads are usually adjusted to consider building exposure, roof slope, heat loss through the roof and the type of occupancy. As the heat loss through the glazing on a greenhouse is high, the design usually considers that most of the snow will melt or slide off.

Drifting snow causes unbalanced loads that may collapse greenhouses. Two to four times normal loads may occur where drifts or sliding snow build up. This is especially true in ranges of several hoophouses where they are placed side by side. It can also occur on the leeward bays of a

gutter-connected range. A space of at least 10 feet should be left between freestanding greenhouses to provide space for the snow that slides off. If there is not adequate space, sidewalls may be crushed in.

Other considerations

In practice, combinations of loads are used as several types of loading may occur at the same time. For example, there may be a high wind associated with a snowstorm.

In some areas of the country, earthquake loads may have to be considered. Production greenhouses are usually exempt, as they have limited human occupancy.

Today, most manufacturers provide a structural analysis for their greenhouses. This may be required to obtain a building permit and insures that the greenhouse will handle the forces of nature without problems.

John is an agricultural engineer, an emeritus extension professor at the University of Connecticut and a regular contributor to *Greenhouse Management*. He is an author, consultant and certified technical service provider doing greenhouse energy audits for USDA grant programs in New England. jbartok@rcn.com (mailto:jbartok@rcn.com)

How to adjust substrate pH with limestone

Departments - Production Pointers

January 4, 2017

Christopher J. Currey (/author/11251)

ONE CHALLENGE GREENHOUSE GROWERS consistently face is managing substrate pH for containerized plants. Substrate pH affects micronutrient availability in the root zone. If the pH is too high, micronutrients are less available and deficiencies can become visible **(Fig. 1)**. Alternatively, if the pH is too low, micronutrients become too available and toxicities can occur **(Fig. 2)**. While there are several post-planting

strategies to alter substrate pH, pre-plant adjustment with limestone affords growers a great opportunity to accommodate species-specific requirements in the greenhouse.

There are a number of factors that influence which type and how much lime should be added. First, determine what your target pH is, based on crop needs. Next, determine what the pH of your un-amended substrate is. When you take your target pH and subtract the pH of your unamended substrate, this will give you the amount you need to increase your pH.

Fig. 1. Calibrachoa, like petunia, frequently show signs of micronutrient deficiencies caused from micronutrient unavailability when substrate pH is too high.
Photo: Christopher J. Currey

As previously mentioned, plants vary in their pH requirements. Many greenhouse crops grow well at a pH from 5.8 to 6.2. However, there are a number of species that require lower or higher substrate pH values. The “geranium group” is comprised of plants that are efficient at taking up micronutrients and, therefore, grow well at higher pH levels, from 6.0 to 6.6. Alternatively, the “petunia group” grows well when substrate pH is from 5.4 to 6.0, as these species are inefficient at taking up micronutrients.

Sphagnum peat moss is the primary component for most greenhouse substrates. With a pH of 3.0 to 4.0, it is too acidic to use without amending for production. When other components such as perlite, bark and/or vermiculite are added to peat to produce the substrate mix, the pH will still be too low and will then need to be raised so it is within a range acceptable for plant growth. For soilless substrates used in containerized crop production, adjusting the pH of growing substrate is accomplished by adding limestone.

You will also want to take your water quality and fertilizer source(s) into consideration. If your water is high in alkalinity, you can reduce the amount of lime added since the alkalinity will raise the substrate pH over time. Additionally, the different form(s) of nitrogen will affect pH. If you are using a nitrate (NO_3^-)-based fertilizer, this will cause the pH to increase over time and reduce the amount of lime you’ll need to add. Alternatively, ammonium (NH_4^+)-based fertilizers decrease the pH, increasing the amount of limestone needed.

Fig. 2. Some species, like the zonal geranium shown here, are efficient at taking up micronutrients and can be susceptible to micronutrient toxicities if substrate pH is too low.
Photo: Christopher J. Currey

Once you have determined how much you need to increase the substrate pH, you'll need to select which type of limestone to use. There are two types of limestone used for substrate pH adjustment- calcitic limestone and dolomitic limestone. Dolomitic limestone [$CaMg(CO_3)_2$] is the most commonly used limestone, while calcitic limestone ($CaCO_3$) is also used. Calcitic limestone is generally a faster-acting lime source, whereas dolomitic limestone will also provide magnesium to your plants.

The best way to know how much lime to add is to develop a lime addition curve. Make several small test batches of substrate and add different amount of limestone to each batch. After the substrate has had a chance to equilibrate with the limestone, measure the pH of the different substrates. Using these data, plot the response of substrate pH to the various lime additions. Looking at this graph should give you a very good idea of how much lime you should add to your specific substrate to get the final pH you want.

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Is your interviewing process out of bounds?

Departments - Green Industry Matters

Choose your candidate questions carefully to avoid discriminatory hiring practices.

January 4, 2017

Leslie F. Halleck (/author/11206)

MOST SMALL BUSINESS OWNERS wear a multitude of hats when it comes to taking care of day-to-day operations. One of those is typically the Chief Hiring Manager and Interviewer Hat. Recruiting and hiring in the green industry is a challenging and time-consuming process. Additionally, most business owners and managers don't have formal training on how to conduct interviews. This lack

Tread carefully while asking interview questions so that your requests for information are within legal limitations.

Photo: Thinkstock.com

of formal instruction can cause many managers to step where they shouldn't during the interview process.

Are you going to have kids? Are you pregnant now? Is your wife pregnant? How long do you think you'll take off work when you have a baby? Will you come back to work after you have a baby? How many kids do you have in day care? When will you get married? Do you have a boyfriend or girlfriend and do you live with them? Do you have a wife and kids to take care of? Based on these questions, this sounds like conversation you'd hear at social brunch or a friend's wedding shower, or maybe this is a familiar line of questioning at family gatherings. Where this type of banter shouldn't be expected, however, is in the job interview room.

While questions such as the ones I mentioned have no *business* being asked during a job interview, they are still considered fair game by employers who either don't know or don't respect the legal and ethical boundaries surrounding hiring. Discriminatory interviewing tactics not only hurt the job seeker, but they can significantly undermine a company's efforts to acquire talented hires.

"Will you miss work if your child is sick? Because husbands don't miss work, and we expect you to be dedicated to us, not your family." This is a real question asked of a real interview candidate I spoke with (not asked by me, of course!). Ultimately, it's fear that is behind a question like this. This fear is felt by the hiring manager who's worried they will soon have to go through the recruiting process all over again.

Fear is an understandable emotion. Running a business is a risky affair that puts a lot of burden and stress on the owner, not to mention managers and those in charge of hiring. There can be fear of an employee being out of the office too often or for an extended period. Smaller greenhouse operations, in particular, have a difficult time trying to cover the workload of key employees that are off the job for many months. It can be downright painful and costly when unplanned. I've managed others' businesses and labor and I run my own business, so I get it. However, that fear does not entitle us to discriminate against a good candidate based on their potential fertility, marital status, sexual orientation, or any other such personal matter that has no bearing on their suitability for the job.

> *Discriminatory interviewing tactics not only hurt the job seeker, but they can significantly undermine a company's efforts to acquire talented hires.*

Even if you hire a candidate, intrusive and illegal interview questions asked during their interview put a damper on future working relations because trust is most likely already lost. As an employer, the last thing you want is your new key hire coming in the door and already looking over her shoulder (or even for a plan to leave). Bad interview questions set both parties up for failure.

As an employer or hiring manager, you must know which questions you are and are not legally allowed to ask candidates during an interview, or put on your job application. Know that overstepping your bounds with inappropriate questions will immediately send up red flags for

applicants. If you don't want good applicants walking out of your job interviews or passing on your offer (or suing you), keep your interview questions focused on what's relevant — the applicant's skills and experience.

The best way to combat your labor-related fears is to focus on the benefits you'll gain from hiring a great candidate, even if there is the potential they may be out for a few months for maternity leave, are young and single and may move on in a few years, or have a few kids and may need to take more sick days than other employees. Working out flexibility needs in advance can take a lot of pressure off both employer and employee, plus boost productivity. If, as a company, you haven't been proactive in thinking about and planning for such staff outages in advance, there's no time like the New Year.

Leslie (CPH) owns Halleck Horticultural, LLC, through which she provides horticultural consulting, business and marketing strategy, product development and branding, and content creation for green industry companies. lesliehalleck.com (http://lesliehalleck.com/)

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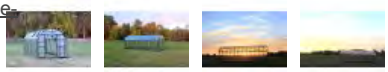

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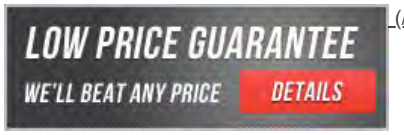

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Quick Overview

This beautiful barn-style greenhouse gives you a year-round growing space in an attractive, heavy duty aluminum frame and 10mm twin-wall panels.

Engineered to perform in harsh environments. The Grandio Elite's rugged durability, makes it the most insulated of the greenhouses on the market and it's barn shape design is both elegant and functional, and allows plenty of growing space.

Made to meet the highest standards of amateur and professional gardeners, the 1.6mm profile aluminum frame provides a stronger and more durable build than its competitors and won't warp, melt, or crack like the PVC-based barn-style greenhouses. And the heavy-duty construction coupled with 10mm twin-wall polycarbonate panels provide and the perfect thickness for winter insulation.

A wide range of features and accessories culminates in a well ventilated growing space with gliding double doors, our superb easy-to-assemble system, and an insulation (R) value of 1.89* and heat loss (U) value of 0.53 resulting in an amazing gardening and greenhouse experience.

The doors are hung from above which eliminates jamming and the door wheels are made from nylon for durability. The door wheel bolt is turned from solid brass with a smooth shank to reduce wear on the wheels.

The Premium Kit adds the following items to the standard greenhouse kit:

6 Auto Roof Vent Openers
2 Packs of 10 Plant Hangers
1 Trellis Kit
1 Drip Kit
8 oz. Brillianize Cleaner with cloth

DESCRIPTION SPECIFICATIONS REVIEWS

Carefully designed, engineered, and built to the highest quality standards. Gardeners of all types will love the combination of strength, quality, features and especially the terrific value the Grandio Greenhouse offers.

- Frame: Heavy duty aluminum
- Color: Powder coated green
- Panels: 10mm twin-wall UV protected polycarbonate.
- Door Width: 44"
- Doors: Bind-resistant sliding double-doors.
- Latch: Easy-latch doors with double-ball catch
- Tools: Included
- Expandable - Easily add extensions in the future
- Hardware: Stainless steel nuts and bolts
- Reinforcement: Cross-roof truss and cross corner bracing
- Gutters: Built-in rain gutters
- Ventilation: (6) roof vents

HUMANITARIAN PROJECT FUNDING PROPOSAL FOR COOPERATIVE INDUSTRIAL HEMP FIBER PRODUCTION

transplanting collectively on Tribal land **Exhibit J**

Transplanters on bare soil

Tractor-pulled transplanters with modular elements for planting on bare soil

Resistant, versatile, precise and easy to use, our transplanters boast flawless performance even when planting seedlings on unprepared bare soil. Steep or uneven grounds are not a limit for our machines nor will they be for your work.

The adjustable distances for the individual models, the ease of use and the possibility to customise the transplanter according to your actual work requirements will allow you to optimise the working time without compromising the quality of the final result. Ideal for transplanting vegetables, tobacco and seedlings in general with and without clods of any type.

We do not propose just simple mass-produced machines, but manufactured with care in the processing and in the choice of details, customizable on the basis of your actual needs, to ensure better work performance.

Bare roots plants, seedlings with clod and cuttings
– 1 operator for each row –

Transplanter PLANT

ENTRY-LEVEL finger transplanter, both for its extreme ease of use (also by unskilled labourers) and for its excellent value for money...

MORE DETAILS

Transplanter BIG

We are particularly proud of the Finger transplanter model Big as we were the first in Europe more than 35 years ago to realise...

MORE DETAILS

Seedlings with clod
– 1 operator for each row –

Transplanter FAST

Semi-automatic transplanter with 12 or 9-cup horizontal rotating feeder for pairs of rows min. 40 cm (with kit on request min. 25 cm)...

MORE DETAILS

Transplanter FAST-M

Semi-automatic transplanter, equipped as standard with 6-cup rotating horizontal feeder and with parallelogram (for the perfect...

MORE DETAILS

Transplanter FAST BASIC

The Fast Basic transplanter was created mainly to meet the needs of some markets particularly sensitive to purchase prices...

MORE DETAILS

Transplanter FAST BASIC-M

Transplanter with 6-cup horizontal rotating feeder, designed with long experience and advanced technology. Suitable for the planting...

MORE DETAILS

Transplanter FAST ELECTRONIC

The Fast Electronic Transplanter introduces an electronic management in changing of plants' distance in the row and the quincunx...

MORE DETAILS

Transplanter MAX

Requested on national and international markets due to its extreme versatility, this transplanter is equipped with vertical...

MORE DETAILS

Transplanter MAX-M

The Transplanter is equipped with vertical rotating perforating cups that allow transplanting vegetable seedlings in general...

MORE DETAILS

Seedlings with clod
– 1 operator every 2 rows –

Transplanter DUPLEX

Semi-automatic transplanter with single operator workstation every 2 rows, provided with a 24-cups horizontal rotating feeder...

MORE DETAILS

Transplanter IPER-DUPLEX

Semi-automatic transplanter with single operator workstation every 2 rows, provided with a 36-cups horizontal rotating feeder...

MORE DETAILS

Transplanter MIDI-DUPLEX

Semi-automatic transplanter with single operator workstation every 2 rows, equipped with a 24-cups horizontal rotating feeder...

MORE DETAILS

Transplanter MAX-DUO

Semi-automatic transplanter with single operator workstation every 2 rows, equipped with a 12-cups horizontal rotating feeder...

MORE DETAILS

Trust in our consulting service. We will implement your project together.

CONTACT US

Thomas + Max-M Transplanter and mulching machine

You are here: Home > Transplanters on mulched soil > Thomas + Max-M

Flagship of Fedele, the combined **Transplanter – Mulching machine**, specifically designed for halving working time and relative labour costs **through the simultaneous execution (in one step) of 4 basic operations:**

- perfect laying and tamping of plastic, photoselective, reflective, paper or biodegradable film
- small bed forming

- drilling of the film (150-200-250-300 cm.)
- transplanting on film of seedlings with conical and cylindrical peat clod max 7 cm in diameter, pyramidal and cubic max 6 × 6 cm. , also garlic, potatoes and various seeds .

Adjustable spacing inter-row min. **27 cm** max on request. Adjustable plant spacing in the row min. **15 cm** max **162 cm**.

Equipped as standard with parallelograms (for perfect adaptation to the characteristics of the soil and to guarantee constant depth of transplanting even when the height of the planting bed varies or in the presence of unprepared soil), flex rubber tamping wheels, mulching protection slides and a sturdy double shelf seedlings holder (from 3 rows up)

Our Thomas+Max can also be used separately both as a **Max** or **Max-M** transplanter and as a **Thomas** mulcher and can be completed with a wide range of accessories.

ACCESSORIES ON REQUEST

- Horizontal rotating feeder (increases the working efficiency by about 50%.)
- Device for watering
- Irrigation collar laying device
- Adjustable front roller
- Perforating roller for drainage
- Device for pesticides and fertilizers
- Row marker
- Roller Compactor

We have a wide range of accessories. Contact us for more information.

TECHNICAL SPECIFICATIONS

MOD.	FILM / / / MAX					Kg		
	cm	cm	cm	cm	cm	Kg	HP	n° / 1h
THOMAS + MAX - M1	150	15 - 162		200	235	550	40	2.700 - 3.100
THOMAS + MAX - M 2	150	15 - 162	27 - 90	200	235	678	45	5.400 - 6.200
THOMAS + MAX - M 3	150	15 - 162	30 - 65	250	235	820	50	8.100 - 9.300
THOMAS + MAX - M 4	150	15 - 162	30 - 65	300	235	1020	55	10.800 - 12.400

Conical Pyramidal Cylindrical Cubic

BROCHURE

BROCHURE THOMAS+MAX-M

SHARE

VIDEO

We could show you the potential of our products using classic promotional videos but we prefer to do it through the real experiences that our customers wanted to share with us.

YOU MAY ALSO BE INTERESTED IN

Max-Duo

Max-M

Max

Transplantadora semi-automática
Transplantador semi-automático
Halbautomatische Umpflanzmaschine

FAST BASIC

Trapiantatrice semiautomatica
Semiautomatic transplanter
Transplanteuse semiautomatique

MOD.	cm.	cm.	cm.	cm.	Kg.	HP	1 h. X n.
FAST BASIC 1	9-83		200	170	287	25	5.000-5.500
FAST BASIC 2	9-83	50-125	200	170	454	35	10.000-11.000
FAST BASIC 3	9-83	50-120	250	170	618	45	15.000-16.500
FAST BASIC 4	9-83	50-110	350	170	793	55	20.000-22.000
FAST BASIC 5	9-83	50-97	400	170	955	60	25.000-27.500
FAST BASIC 6	9-83	50-87	450	170	1117	75	30.000-33.000

Trapiantatrice con alimentatore rotante orizzontale a 12 bicchieri o a 9 bicchieri per coppie di file min.cm. 40. Per trapianto di piantine con zolla conica, piramidale fino a cm.3,5 di diametro e da cm.4 a cm.6 con kit a richiesta. Indicata per pomodoro, cavolo, tabacco, finocchio,ecc. Regolabili le distanze interfila, interpianta e la profondità di trapianto. Molto semplice da usare e ad elevata produttività.

Transplanter with horizontal rotating feeder with 12 bowls or to 9 bowls for couples of rows min. cm.40. To transplant the young plants with conical and pyramidal bal ltill cm.3,5 of diameter and from cm.4 to cm.6 with kit on request Suitable for tomato, cabbage, tobacco, fennel and so on.. Adjustable the distances inter-row, inter-plant and in the deep of transplanting. Very simple to use and with an high productivity.

Transplanteuse avec alimentateur roulanthorizontal 12 bols ou à 9 bols pour couples de ligne s min.cm.40. Pourtransplantede petites plantes avec motte conique and piramidal jusqu'à cm.3,5 de diamètre et de cm.4 jusqu'à cm.6 avec kit sur demande. Elle est indiquée pour tomate, chou, tabac, fenouil etc. Réglables les distances interligne, interplante et en profondeur de transplante. Très facile à utiliser et à haut productivité.

Transplantadora con alimentador giratório horizontal a 12 vasos o bien a 9 vasos por parejas de filas min.cm.40. Para trasplante de plantas con terrón cónico y pirámidal hasta cm.3,5 de diámetro y desde cm.4 hasta cm.6 con kit a pedido. Apta por tomate, col, tabaco, hinojo ecc. Regulables las distancias entrefila, entreplanta y en profundidad de trasplante. Muy simple a utilizar y a elevada productividade.

Transplantador con alimentador giratório horizontal dotado de 12 copos ou de 9 copos para pares de filas min.cm.40. Para transplantaçao de plantinhas com torrão cónico e piramidal atè cm.3,5 de diàmetro e de cm.4 a cm.6 com kit a encomendar. Apta por tomate, couve, tabaco, erva-doce ecc. Regulàveis las distâncias intervalo entre as filas, intervalo das linhas das plantas e em profundidade de transplantaçao. Fàcil de utilizar e com elevada productividade.

Umpflanzmaschine mit horizontalem Rotationsverteiler mit 12 GefäBen oder 9 GefäBen für Ehepaare der Reihen min.cm.40. Zum Verpflanzen von Setzlingen mit kegeliger und pyramidenförmiger Schollenform bis zu einem Durchmesser von 3,5 cm. und von 4 cm. bis 6 cm. auf Wunsch mit Set. Geeignet für Tomate, Kohl, Tabak, Fenchel, etc. Reihen- und Pflanzenabstand und Pflanztiefe sind einstellbar. Einfach zu verwenden bei hoher Produktivität.

HUMANITARIAN PROJECT FUNDING PROPOSAL FOR COOPERATIVE INDUSTRIAL HEMP FIBER PRODUCTION

U.S. Department of Agriculture Crop Statistics **Exhibit K**

United States Department of Agriculture
Economic Research Service

Agricultural Production and Prices

Markets for major agricultural commodities are typically analyzed by looking at supply-and-use conditions and implications for prices. From an economic perspective, these factors determine the market equilibrium. In the U.S. agricultural sector, many interactions and relationships exist between and among different commodities. For example, corn production and prices affect feed costs in the livestock sector.

Filter By Topic

- Animal Products
- Crops
- Farm Economy
- Dairy
- Corn and Other Feedgrains
- Cotton & Wool
- Farm Sector Income & Finances

Reset

U.S. agricultural production occurs in each of the 50 States

The United States produces and sells a wide variety of agricultural products across the Nation. In terms of sales value, California leads the country as the largest producer of agricultural products (crops and livestock), accounting for almost 11 percent of the national total, based on the 2012 Census of Agriculture. Iowa, Texas, Nebraska, and Minnesota round out the top five agricultural-producing States, with those five representing more than a third of U.S. agricultural-output value.

Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, 2012 Census of Agriculture.

Crop production is concentrated in California and the Midwest

California, Iowa, Illinois, Minnesota, and Nebraska are the five States with the highest value of crop sales. With its large horticultural sector, California?s overall crop value of more than $30 billion in 2012 is about 75 percent higher than that of Iowa, the second-ranked State. In contrast to California, crop values in the next four leading

States derive from grains and oilseeds, particularly corn and soybeans. For other crops, Washington State typically leads the country in apple production, while Florida is the largest producer of oranges.

Livestock production is scattered across the country

Livestock production and sales occur in all 50 States. Texas, Iowa, California, Nebraska, and Kansas lead the country in sales value of livestock and their products. The cattle sector is the dominant source of value in Texas, Kansas, and Nebraska. Milk from cows accounts for about 57 percent of livestock-sale value in California. Both the hog and cattle sectors are large sources of sales value in Iowa. North Carolina is the leading producing State of poultry and eggs, followed by Georgia.

Crops account for the largest share of the value of U.S. agricultural production

The value of agricultural production in the United States rose over most of the last decade due to increases in production as well as higher prices. Yield gains for crops were particularly important, although acreage also rose in response to elevated prices from 2008 to 2012. Falling prices in the last two years, accompanied by some reduction in acreage, have led to a 15-percent decline in the value of crop production since 2012. While livestock production increased over the decade, high feed costs and drought led to slower growth in recent years. Cattle herd rebuilding combined with Porcine Epidemic Diarrhea Virus (PEDv) to reduce red meat production by almost 4 percent in 2014, pushing overall red meat and poultry production down more than 1 percent. Higher prices more than compensated for lower production, resulting in a 17-percent increase in the value of livestock production last year.

Corn and soybean acreage has risen since 1990, while wheat and cotton are down

Since 1990, combined acreage planted to corn, wheat, soybeans, and upland cotton in the United States has ranged from 218 million to 242 million acres. Policy changes increased planting flexibility provided to farmers starting in the 1990s, which has allowed them to respond to market signals in their cropping choices. Overall, acreage has generally been higher in recent years, with the four highest combined annual planting totals for these crops since 1990 occurring in 2011-14

Market value of crops sold in 2012

1 dot = $20 million

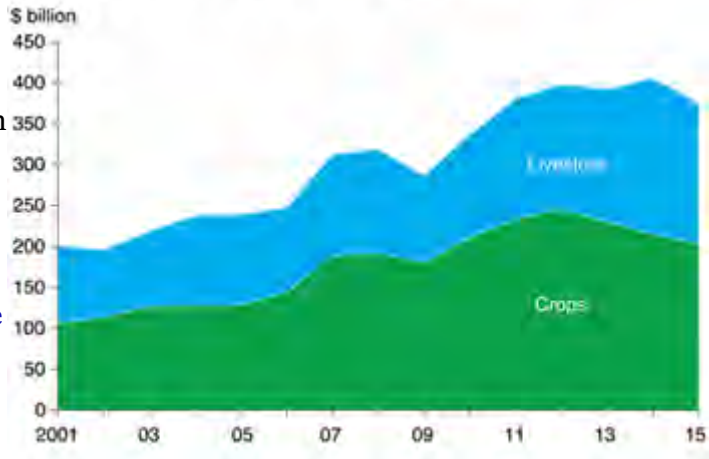
Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, 2012 Census of Agriculture.

Market value of livestock, poultry, and their products sold in 2012

1 dot = $20 million

Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, 2012 Census of Agriculture.

Value of U.S. agricultural production, 2001-15



Source: USDA, Economic Research Service calculations using data from ERS and USDA, National Agricultural Statistics Service, Quick Stats Database.

when prices were higher. Reduced acreage in 2015 reflected, in part, lower prices.

Fruit and tree nuts lead the growth of horticultural production value

U.S. fruit and tree nut value of production has increased steadily over the past decade, while the value of vegetable production has been more stable. Grapes, apples, strawberries, and oranges top the list of fruits; tomatoes and potatoes are the leading vegetables. Tree-nut value rose dramatically to record levels of around $10 billion in recent years, with crop value for most major tree nut crops?led by almonds, walnuts, and pistachios?achieving historical highs.

Broiler production continues its long-term expansion

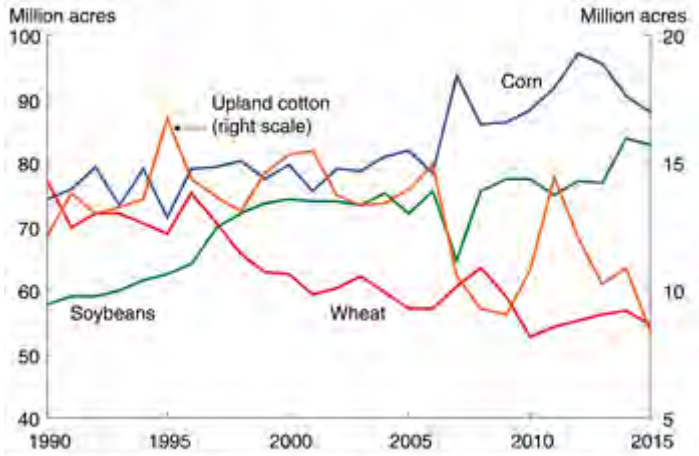
With only a few exceptions, production of broilers (the most efficient converter of feed to meat) has outpaced growth in beef and pork production since 1990, and poultry meat has been the major meat produced and consumed in the United States since the mid-1990s. Total domestic per capita beef, pork, and poultry disappearance (a proxy for use) is beginning to increase again after several years of decline that reflected higher feed costs, higher retail prices, and effects of the 2007-09 economic recession. Exports of meats and products also continue to be an important source of demand.

Growth in output per cow drives U.S. milk production gains

The number of milk cows in the United States generally fell in the 1980s and 1990s, but has generally risen over the past 10 years. Milk output has risen more than 60 percent since 1980 and now exceeds 200 billion pounds per year. Genetic developments and technological improvements underlie a pronounced upward trend in milk output per cow. Consolidation in the dairy sector also has facilitated efficiency gains in milk production.

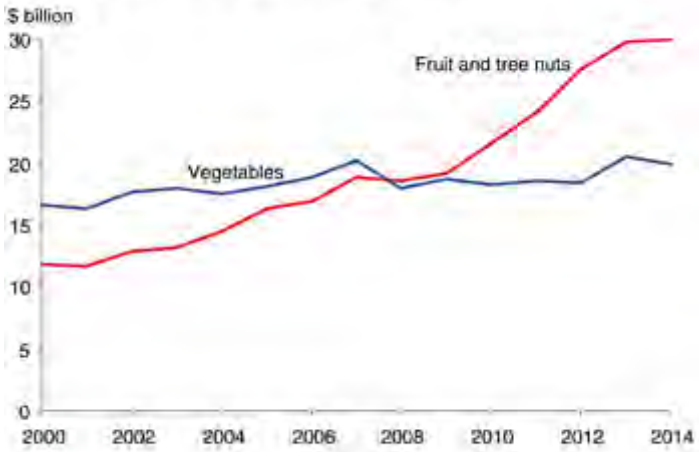
Corn-based ethanol production in the United States has plateaued in recent years

U.S. planted area: Corn, wheat, soybeans, and upland cotton, 1990-2015



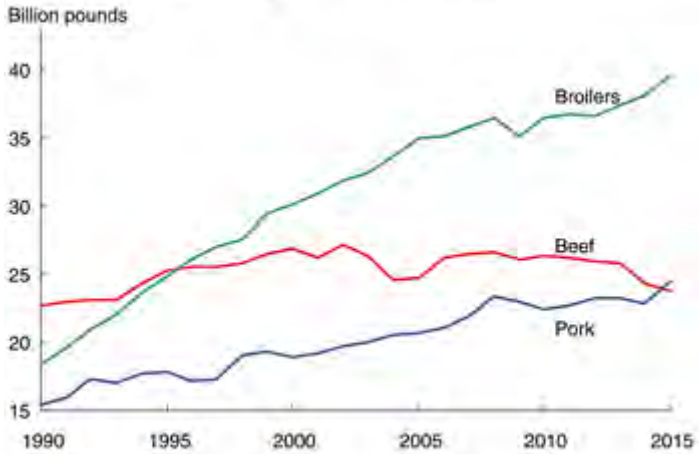
Source: USDA, Economic Research Service, Baseline Related Historical Data.

Value of U.S. horticultural production, 2000-2014



Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, *Citrus Fruits, Noncitrus Fruits and Nuts*, and *Vegetables*.

U.S. broiler, beef, and pork production, 1990-2015



Source: USDA, Economic Research Service, Livestock and Meat Domestic Data.

Corn is the major agricultural input used in the United States to produce ethanol, which has accounted for 35-40 percent of U.S. corn use in recent years. Rapid expansion of ethanol production in the past decade reflected a response to high crude oil prices, the Renewable Fuel Standard, and other factors. However, ethanol production has plateaued as oil prices have fallen and the gasoline market has hit a 10-percent blend constraint.

More U.S. cotton is exported than milled domestically

The 10-year phase out of textile and apparel import quotas that existed under the international Multifiber Arrangement was completed at the start of 2005, leading to increased U.S. imports of those products and contributing to reduced U.S. milling and increased U.S. exports of cotton. Exports now account for more than 70 percent of overall use of U.S. cotton, compared with less than 40 percent in the 1990s. The United States is the leading global exporter of cotton. China is the largest destination of U.S. cotton exports.

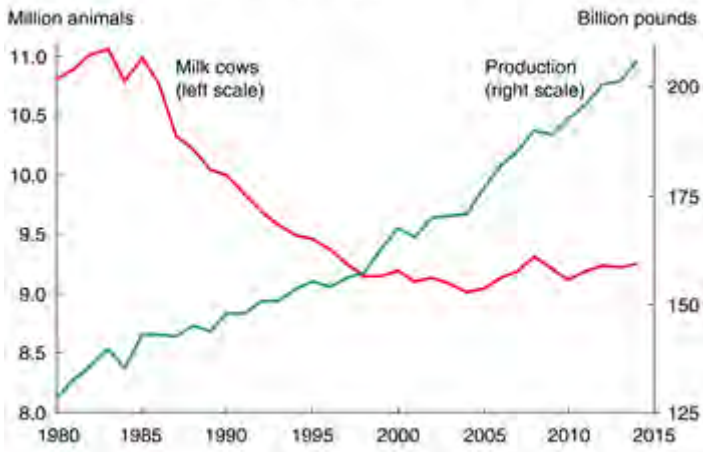
Farm-level prices have declined from recent highs

Although prices for agricultural commodities frequently vary from year to year, they have generally moved higher in the past decade. In these aggregate measures, nominal prices for crops were up more than 70 percent above their 2005 levels, while those for livestock rose over 75 percent from 2006 to 2014. Prices for both crops and livestock fell in 2015, however, as U.S. and global markets responded to higher prices by increasing production.

Inflation-adjusted price indices for corn, wheat, and soybeans show long-term declines

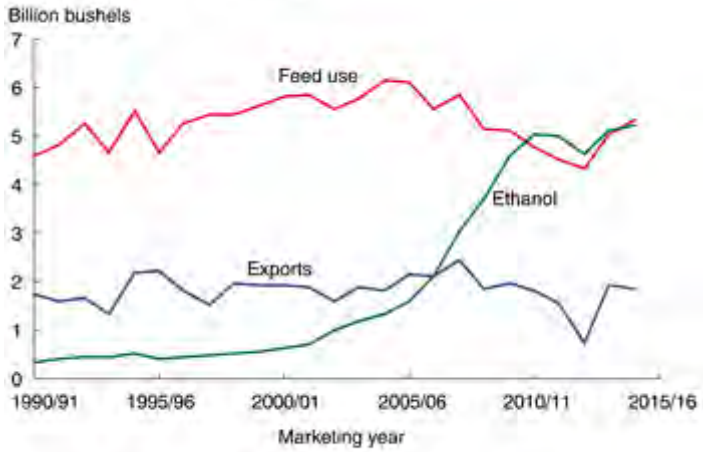
Increased productivity in crop production underlies a general decrease in inflation-adjusted prices for corn, wheat, and soybeans over the past century. This downward price trend was reversed during the past decade by global growth in population and income, increasing biofuel production, and a depreciation of the U.S. dollar, but is likely to resume from these recent higher levels as population and income growth slow, biofuel production levels off, and the U.S. dollar strengthens.

U.S. milk production and dairy herd, 1980-2014



Source: USDA, Economic Research Service, Baseline Related Historical Data.

U.S. corn use, 1990/91-2014/15



Note: Marketing year for corn starts in September.
Source: USDA, Economic Research Service, Feed Grains Database.

U.S. upland cotton use, 1990/91-2014/15

Note: Marketing year for upland cotton starts in August.
Source: USDA, Economic Research Service, Baseline Related Historical Data.

Prices for beef cattle have outpaced other livestock prices

From 2000 to 2014, inflation-adjusted meat prices have reflected slower production growth as meat output responded to lower producer profits due in part to rising feed costs. Cattle production costs, production, and prices also were affected by poor forage conditions due to lingering droughts over much of the past decade, particularly in the Southern Plains. As feed prices softened, however, livestock production rose in 2015, which lowered U.S. livestock prices.

Last updated: Friday, May 05, 2017

For more information contact: Alex Melton

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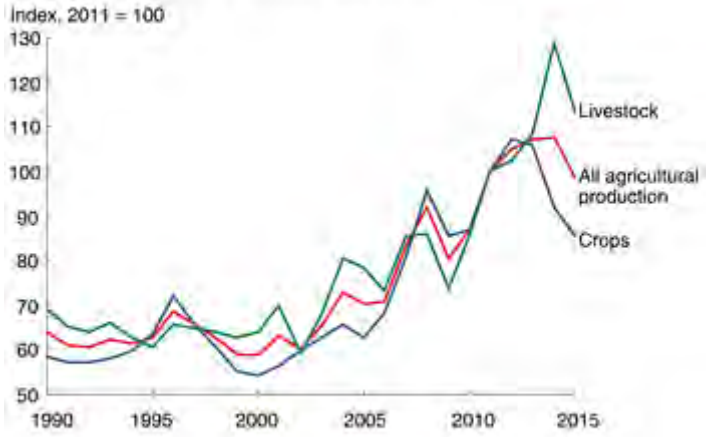
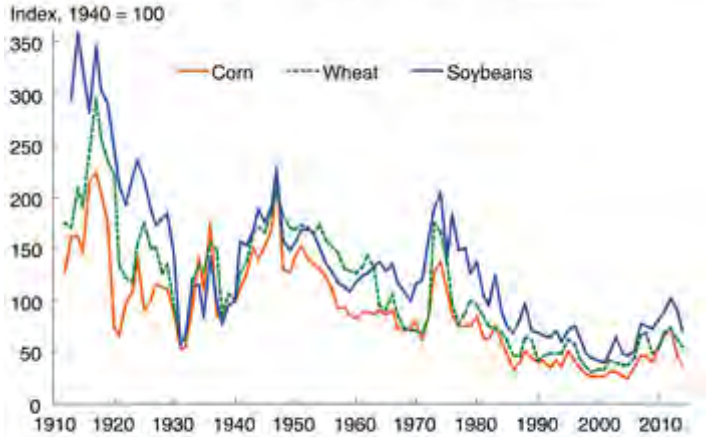
U.S. prices received by farmers, 1990-2015



Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, *Agricultural Prices*.

Inflation-adjusted corn, wheat, and soybean prices, 1912-2014



Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service and U.S. Department of Labor, Bureau of Labor Statistics.

Inflation-adjusted U.S. livestock prices, 1990-2015

[1]Broiler price is 12-city market price prior to 2009.
Hundredweight = 100 pounds.
Source: USDA, Economic Research Service calculations based on data from Baseline Related Historical Data and U.S. Department of Labor, Bureau of Labor Statistics.

United States Department of Agriculture
Economic Research Service

Farming and Farm Income

American agriculture and rural life underwent a tremendous transformation in the 20th century. Early 20th century agriculture was labor intensive, and it took place on many small, diversified farms in rural areas where more than half the U.S. population lived. Agricultural production in the 21st century, on the other hand, is concentrated on a smaller number of large, specialized farms in rural areas where less than a fourth of the U.S. population lives. The following material provides an overview of these trends, as well as trends in farm sector and farm household incomes.

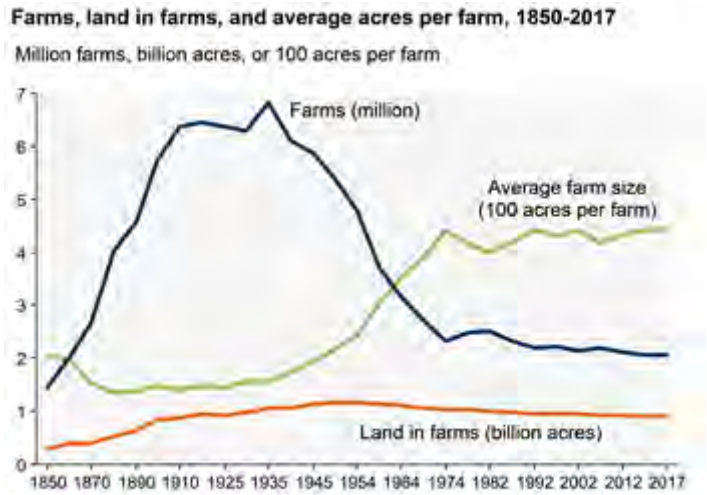
Filter By Topic

- Agricultural Research and Productivity
- Farm Household Well-being
- Farm Sector Income & Finances
- Farm Structure and Organization

Reset

The number of farms has leveled off at about 2.05 million

After peaking at 6.8 million farms in 1935, the number of U.S. farms fell sharply until leveling off in the early 1970s. Falling farm numbers during this period reflected growing productivity in agriculture and increased nonfarm employment opportunities. Because the amount of farmland did not decrease as much as the number of farms, the remaining farms have more acreage, on average—about 444 acres in 2017 versus 155 acres in 1935. About 2.05 million farms are currently in operation.



Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, Census of Agriculture (through 2012) and *Farms and Land in Farms: 2017 Summary*

Productivity growth is still the major driver of U.S. agricultural growth

Technological developments in agriculture have been influential in driving changes in the farm sector. Innovations in animal and crop genetics, chemicals, equipment, and farm organization have enabled continuing output growth without adding much to inputs. As a result, even as the amount of land and labor used in farming declined, total farm output more than doubled between 1948 and 2015.

U.S. gross cash farm income relatively stable since 2016

Gross cash farm income (GCFI) is annual income before expenses and includes cash receipts, farm-related income, and Government farm program payments. GCFI is forecast at $428 billion in 2019, versus $326 billion (inflation-adjusted 2019 dollars) in 2000, with the increase across time largely due to higher cash receipts. GCFI is expected to remain relatively stable, averaging $428 billion from 2016 to 2019.

U.S. net farm income forecast to increase in 2019

Gross farm income reflects the total value of agricultural output plus Government farm program payments. Net farm income (NFI)—which reflects income from production in the current year—is calculated by subtracting farm expenses from gross farm income. NFI considers both cash and noncash income and expenses. Inflation-adjusted net farm income is forecast to increase 8 percent in 2019, to $69.4 billion, after an expected decline in 2018. Inflation-adjusted farm production expenses are projected to decrease 1 percent in 2019.

Cash receipts for corn and soybeans accounted for close to half of all U.S. crop receipts in 2017

Crop cash receipts totaled $195.4 billion in 2017. Receipts from corn and soybeans accounted for 43.2 percent of the total.

Cattle/calf receipts accounted for 38 percent of U.S. animal/product receipts in 2017

Cash receipts for animals and animal products totaled $176 billion in 2017. Cattle/calf receipts accounted for 38.3 percent of that total, while poultry/egg receipts accounted for 24.2 percent and dairy receipts 21.6 percent.

Distribution of farms and value of production vary by farm type

Gross cash farm income (GCFI) includes income from commodity cash receipts, farm-related income, and Government payments. Family farms (where the majority of the business is owned by the operator and individuals related to the operator) of various types together accounted for nearly 98 percent of U.S. farms in 2017. Small family farms (less than $350,000 in GCFI) accounted for 89 percent of all U.S. farms. Large-scale family

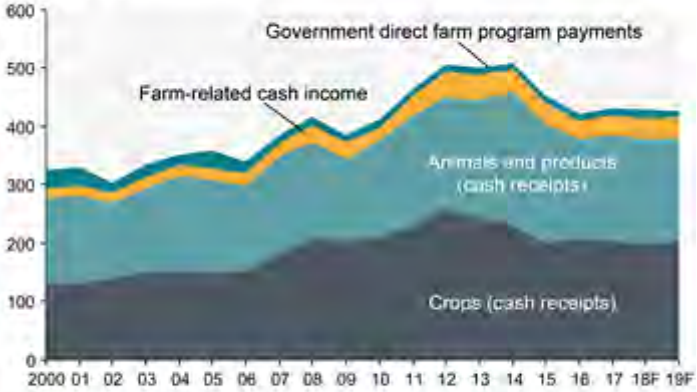
U.S. agricultural output, inputs, and total factor productivity

Index, 1948=1

Source: USDA, Economic Research Service, *Agricultural Productivity in the U.S*, data series, as of October 2017.

Gross cash farm income components, inflation adjusted, 2000-19F

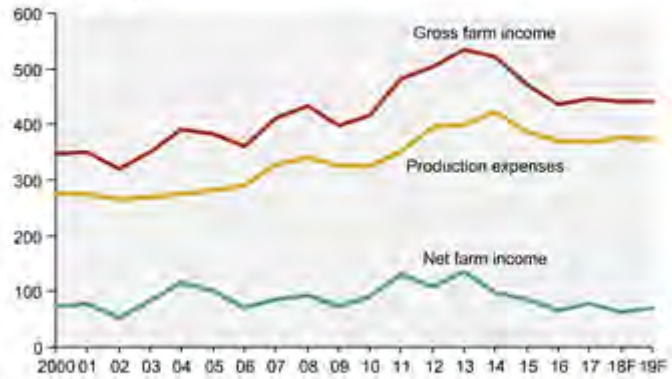
$ billion (2019)



Note: F = forecast. Values are adjusted for inflation using the chain-type GDP deflator, 2019=100.
Source: USDA, Economic Research Service, Farm Income and Wealth Statistics, Data as of March 6, 2019.

Gross farm income, production expenses, and net farm income, inflation adjusted, 2000-19F

$ billion (2019)



Note: F = forecast. Values are adjusted for inflation using the chain-type GDP deflator, 2019=100.
Source: USDA, Economic Research Service, Farm Income and Wealth Statistics, Data as of March 6, 2019.

farms ($1 million or more in GCFI) accounted for about 3 percent of farms but 39 percent of the value of production.

Most farmers receive off-farm income, but small-scale operators depend on it

Median total household income among all farm households ($75,994) exceeded the median for all U.S. households ($61,372) in 2017. Slightly more than half of U.S. farms are very small, with annual farm sales under $10,000; the households operating these farms typically rely on off-farm sources for the majority of their household income. Median household income and income from farming increase with farm size; the typical household operating the largest commercial farms earned $346,218 in 2017, and most of that came from farming.

Last updated: Wednesday, March 06, 2019

For more information contact: Kathleen Kassel

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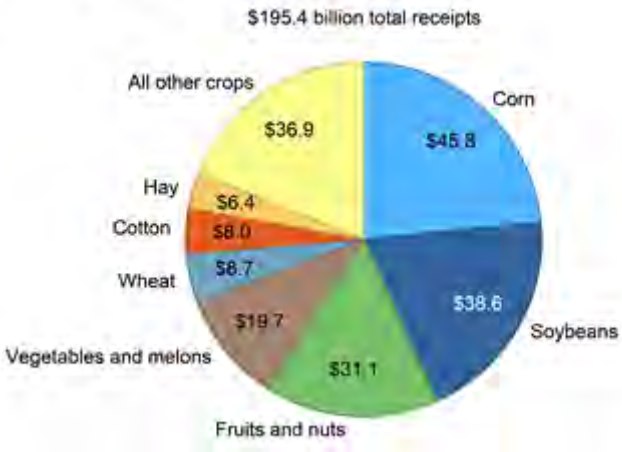
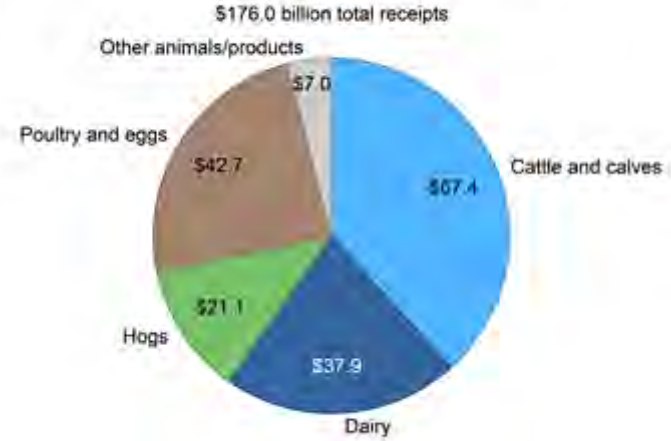
2017 crop cash receipts ($ billion)



Note: Components may not sum to total due to rounding. Data as of March 6, 2019.
Source: USDA, Economic Research Service, Farm Income and Wealth Statistics.

2017 animals and products cash receipts ($ billion)



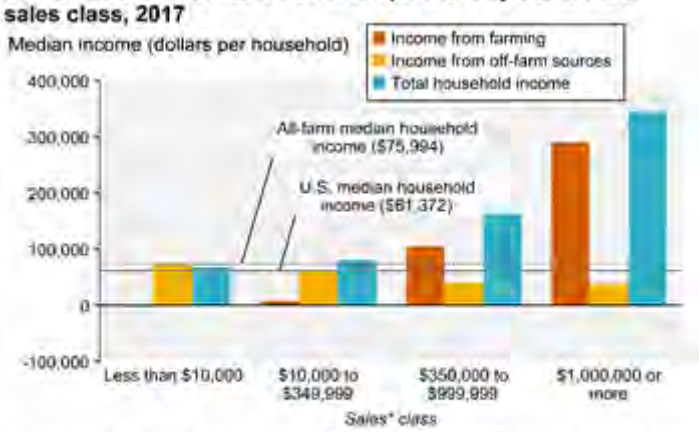
Note: Components may not sum to total due to rounding. Data as of March 6, 2019.
Source: USDA, Economic Research Service, Farm Income and Wealth Statistics.

Farms and their value of production by ERS farm type, 2017

Percent of U.S. farms or production

Note: GCFI refers to annual gross cash farm income before expenses; ERS refers to Economic Research Service. Nonfamily farms are those where neither the principal operator, nor individuals related to the operator, own a majority of the farm business.
Source: USDA, Economic Research Service and National Agricultural Statistics Service, Agricultural Resource Management Survey. Data as of November 30, 2018.

Median household income of farm operators by source and sales class, 2017



*Sales = Annual gross cash farm income before expenses (the sum of the farm's crop and livestock sales, government payments, and other cash farm-related income).
Source: USDA, Economic Research Service and National Agricultural Statistics Service, Agricultural Resource Management Survey and U.S. Census Bureau, Current Population Reports. Data as of November 30, 2018.

Summary table 1--Major uses of land, by region and State, United States, 2012 1/

Regions and States	Cropland 5/	Grassland pasture and range 5/	Forest-use land	Special-use areas	Urban areas	Miscellaneous other land 3/	Total land area 2/
			1,000 acres				
Northeast	12,220	4,916	65,670	11,491	13,340	3,486	111,123
Maine	390	159	17,191	609	231	1,159	19,740
New Hampshire	93	116	4,341	605	423	151	5,730
Vermont	412	305	4,476	498	101	106	5,899
Massachusetts	148	79	2,088	726	1,935	16	4,992
Rhode Island	25	7	290	81	258	0.21135	662
Connecticut	123	22	1,346	340	1,178	90	3,099
New York	4,247	2,397	15,920	4,077	2,638	882	30,161
New Jersey	449	78	1,116	1,093	1,885	85	4,707
Pennsylvania	4,517	1,287	16,242	2,751	3,069	770	28,636
Delaware	438	18	331	143	274	44	1,247
Maryland	1,377	447	2,329	567	1,309	183	6,212
District of Columbia	0	0	0	0	39	0	39
Lake States	40,289	8,414	51,918	9,992	4,705	6,489	121,807
Michigan	7,766	1,982	19,262	2,707	2,355	2,112	36,185
Wisconsin	10,071	2,864	16,727	2,344	1,234	1,422	34,661
Minnesota	22,452	3,568	15,929	4,941	1,116	2,955	50,961
Corn Belt	89,814	18,200	35,437	8,790	9,086	3,029	164,355
Ohio	10,829	2,144	7,864	1,282	2,883	1,148	26,151
Indiana	12,710	1,656	4,748	1,220	1,657	937	22,929
Illinois	23,934	1,728	4,772	2,268	2,573	256	35,532
Iowa	26,714	2,879	2,968	1,953	628	606	35,748
Missouri	15,627	9,792	15,085	2,066	1,345	81	43,995
Northern Plains	96,925	79,766	6,178	7,197	1,256	2,851	194,173
North Dakota	27,120	13,336	517	1,697	123	1,368	44,161
South Dakota	19,356	24,972	1,789	1,916	152	334	48,519
Nebraska	21,857	23,677	1,470	1,562	344	258	49,167
Kansas	28,592	17,781	2,402	2,023	637	891	52,326
Appalachian	19,873	13,890	70,629	8,849	8,098	2,095	123,435

Virginia	2,989	2,794	15,385	1,793	1,744	569	25,274
West Virginia	781	1,351	11,780	1,043	420	10	15,384
North Carolina	4,473	1,579	18,078	2,759	3,086	1,141	31,116
Kentucky	6,369	4,742	11,886	1,237	928	109	25,271
Tennessee	5,261	3,424	13,500	2,018	1,920	267	26,390
Southeast	11,929	10,648	76,004	9,554	11,167	3,478	122,780
South Carolina	1,904	976	13,025	998	1,591	745	19,239
Georgia	4,385	1,680	24,352	1,946	3,207	1,238	36,808
Florida	2,834	5,100	15,827	5,138	4,901	520	34,320
Alabama	2,806	2,892	22,800	1,472	1,467	975	32,413
Delta States	17,993	9,116	52,684	4,569	2,756	3,865	90,984
Mississippi	5,174	2,715	19,495	1,033	730	884	30,031
Arkansas	8,235	4,127	18,544	1,514	727	157	33,302
Louisiana	4,585	2,275	14,645	2,022	1,299	2,825	27,651
Southern Plains	40,505	124,359	22,013	8,169	6,661	9,383	211,089
Oklahoma	11,290	19,756	7,656	1,750	856	2,593	43,901
Texas	29,215	104,603	14,357	6,419	5,805	6,790	167,188
Mountain	40,195	326,867	98,845	63,420	4,803	13,561	547,691
Montana	16,605	47,629	18,429	7,061	195	3,231	93,149
Idaho	5,801	18,391	16,771	6,542	331	5,056	52,892
Wyoming	1,986	46,086	7,002	6,340	128	597	62,140
Colorado	10,668	31,734	15,138	7,455	1,012	323	66,331
New Mexico	1,948	54,344	13,278	6,782	539	741	77,631
Arizona	1,134	43,580	13,000	11,919	1,465	1,602	72,700
Utah	1,476	32,774	9,810	6,045	614	1,870	52,589
Nevada	577	52,329	5,417	11,276	520	141	70,260
Pacific	21,780	57,843	59,188	36,648	7,571	20,633	203,663
Washington	7,539	7,314	18,081	7,601	1,553	444	42,532
Oregon	4,664	23,863	24,116	4,151	719	3,919	61,432
California	9,577	26,667	16,991	24,896	5,299	16,269	99,699
48 States 4/	391,524	654,020	538,566	168,679	69,441	68,870	1,891,100
Alaska	79	696	91,817	146,204	166	126,248	365,210
Hawaii	372	770	1,299	990	256	423	4,111
U.S. Total 4/	391,975	655,486	631,682	315,872	69,864	195,542	2,260,420

1/ Footnotes to other files may be applicable.
2/ Land area established by the Bureau of the Census in conjunction with various Censuses of Population.
3/ Miscellaneous areas such as marshes, open swamps, bare rock areas, deserts, rural residential areas, and other uses not inventoried.
4/ Distributions may not add to totals due to rounding.
5/ Between 2002 and 2012, total cropland decreased by nearly 50 million acres to its lowest level since this series began in 1945, even though harvested cropland (which accounts for most land planted to crops) increased 8 million acres over the same time period. The 49-million-acre decline in cropland pasture contributed to this trend, partly due to methodological changes in the 2007 and 2012 Censuses of Agriculture that reclassified some cropland pasture to permanent grassland pasture and range.

Sources: USDA, Economic Research calculations using data from USDA, National Agricultural Statistics Service (2014a); USDA, National Agricultural Statistics Service (2014b); USDA, National Agricultural Statistics Service (2012); USDA, Farm Service Agency (2014); USDA, Natural Resources Conservation Service (2015); USDA, Natural Resources Conservation Service (2014a); U.S. Department of the Interior, Bureau of Land Management (2013); Oswalt et al. (2014); USDA, U.S. Forest Service (2012a); USDA, U.S. Forest Service (2016); U.S. Department of the Interior, Bureau of Land Management (2012); USDA, U.S. Forest Service (2012b); U.S. Department of Commerce, Census Bureau (2014a); U.S. Department of Defense (2012); U.S. Department of Energy (2012); U.S. Department of Transportation, Federal Highway Administration (2013); U.S. Department of Transportation, Bureau of Transportation Statistics (2015); U.S. Department of Transportation/Federal Aviation Administration (2011); U.S. Geographic Data Technology (2007); U.S. Department of Transportation, Bureau of Transportation Statistics (2007); U.S. Department of Commerce, Census Bureau (2012); U.S. Department of the Interior, Fish and Wildlife Service (2012); U.S. Department of Commerce, Census Bureau, (2014c); U.S. Department of the Interior, National Park Service (2012), and additional information gathered through personal communication with from numerous State agencies responsible for managing fish, wildlife, and game areas.
USDA, Economic Research Service. Contact: Daniel Bigelow (DANIEL.BIGELOW@ERS.USDA.GOV).

Summary Table 3--Total cropland used for crops: Cropland harvested (including double cropped), crop failure, and cultivated summer fallow, annual, 1910-2018

Year 1/	Total crops harvested 2/	Cropland harvested		Crop failure	Cultivated summer fallow	Total cropland used for crops 4/
		Double cropped 3/	4/			
			Million acres			
1910			317	9	4	330
1911			322	10	5	337
1912			320	12	5	337
1913			324	11	5	340
1914			326	11	5	342
1915			332	11	5	348
1916			332	11	5	348
1917			341	11	5	357
1918			353	12	5	370
1919			355	14	5	374
1920			351	12	5	368
1921			350	12	6	368
1922			346	13	6	365
1923			345	14	6	365
1924			346	13	6	365
1925			351	12	7	370
1926			350	14	8	372
1927			349	15	9	373
1928			352	14	10	376
1929			356	13	10	379
1930			360	11	11	382
1931			356	17	11	384
1932			361	11	12	384
1933			331	33	14	378
1934			296	64	15	375
1935			336	25	16	377
1936			314	43	18	375
1937			338	21	20	379
1938			340	13	19	372
1939			321	21	21	363

1940			331	16	21	368
1941			335	12	20	367
1942			339	11	20	370
1943			348	12	17	377
1944			353	10	16	379
1945			345	9	18	372
1946			343	8	18	369
1947			346	8	19	373
1948			348	9	21	378
1949			352	9	26	387
1950	345	9	336	12	29	377
1951	344	8	336	17	28	381
1952	349	8	341	11	28	380
1953	348	7	341	13	26	380
1954	346	7	339	13	28	380
1955	340	7	333	16	29	378
1956	324	7	317	22	30	369
1957	324	8	316	12	30	358
1958	324	8	316	9	30	355
1959	324	6	318	10	31	359
1960	324	7	317	6	32	355
1961	302	6	296	11	33	340
1962	295	8	287	10	34	331
1963	298	7	291	10	36	337
1964	298	6	292	6	37	335
1965	298	6	292	6	38	336
1966	294	5	289	5	38	332
1967	306	5	301	7	32	340
1968	300	4	296	6	33	335
1969	290	4	286	6	41	333
1970	293	4	289	5	38	332
1971	305	5	300	6	34	340
1972	294	5	289	7	38	334
1973	321	5	316	5	31	352
1974	328	6	322	8	31	361
1975	336	6	330	6	31	367
1976	337	7	330	8	31	369

1977	345	7	338	9	31	378
1978	338	8	330	7	32	369
1979	348	8	340	6	32	378
1980	352	11	341	11	30	382
1981	366	15	351	6	30	387
1982	362	15	347	5	31	383
1983	306	12	294	5	34	333
1984	348	11	337	6	30	373
1985	342	8	334	7	31	372
1986	325	9	316	9	32	357
1987	302	9	293	6	32	331
1988	297	10	287	10	30	327
1989	318	12	306	8	27	341
1990	322	12	310	6	25	341
1991	318	12	306	7	24	337
1992	319	14	305	8	24	337
1993	308	11	297	11	22	330
1994	321	11	310	7	22	339
1995	314	12	302	8	22	332
1996	326	12	314	10	22	346
1997	333	12	321	7	21	349
1998	326	11	315	10	20	345
1999	327	11	316	8	20	344
2000	325	11	314	11	20	345
2001	321	10	311	10	19	340
2002	316	9	307	17	16	340
2003	324	8	316	10	16	342
2004	321	9	312	9	15	336
2005	321	7	314	7	16	336
2006	312	9	303	11	15	330
2007	322	10	312	8	15	335
2008	327	12	315	9	14	337
2009	319	10	310	8	15	333
2010	322	7	315	5	14	335
2011	311	10	302	13	14	328
2012	324	9	315	11	13	340
2013	321	10	311	12	13	336

2014	325	8	318	10	14	341
2015	323	7	316	7	13	337
2016	323	6	317	7	12	336
2017	319	6	313	9	12	334
2018 5/	317	6	311	11	12	334

1/ Estimates prior to 1949 do not include Alaska and Hawaii.
2/ Includes doubled-cropped acreage.
3/ Land from which one or more crops were harvested.
4/ May not match calculations based on data in table due to rounding.
5/ Data are subject to revision.

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