

Farming 101

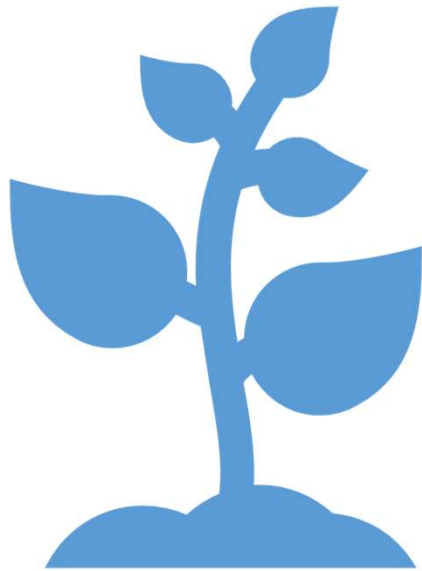
Understanding the Impacts of ROW on Agriculture



Tuesday, June 11



Jon Clark, PMP®
Vice President,
Utilities
Contract Land Staff



Farming 101

Understanding the Impacts of ROW on Agriculture

Best Placement of Access Roads and Structures

Seed Corn/Seed Beans

Center Pivot Systems

Manure – A Stinky Business

Crop Damages: How much should I pay?

Federal Crop Insurance

Working with the Amish

5 Things to NEVER Ask a Farmer

Safety Moment

IT HAPPENS MORE THAN YOU THINK.
**ABOUT EVERY 3 HOURS,
A PERSON OR VEHICLE
IS HIT BY A TRAIN.**



230 IN 2015 THERE WERE APPROXIMATELY **230** FATALITIES AT RAILROAD CROSSINGS



18 FOOTBALL FIELDS

A train traveling at 55 miles per hour takes a mile to stop – the length of **18 football fields** or more – after applying the emergency brakes.



STOP. TRAINS CAN'T.



THE U.S. RAILROAD SYSTEM
216,000
RAILROAD CROSSINGS
830 RAILROADS **134,000** MILES OF TRACK



U.S. Department of Transportation NHTSA U.S. Department of Transportation Federal Railroad Administration #TransportationTuesday



Placement of Access Roads and Structures

Common Planter Widths – 30' – 80' (40'-60')

Common Combine Widths – 20' – 45'

Common Sprayer Widths – 90' – 135' (90'-100')

Placement of Access Roads

Design access roads to run along field boundaries or follow existing access roads.

A recent wind project in Northwest Indiana designed access roads 10'-20' away from property lines/field boundaries.

Poor Placement of Access Roads and Structures

Poor placement of access roads and/or structures could result in a permanent loss of tillable soil.

Placement of Structures

1

Ideally, design structures on field boundaries or service roads.

2

If in a field, design structures so they are at least 100' from any other structure/boundary.



“Crop Dusting” (aka Aerial Application)

Poor Placement of Structures

Poor placement of structures could result in a permanent loss of tillable soil, inability to efficiently irrigate, and inability to crop dust.

Placement of Pipelines



Pipelines should be designed so they do not interrupt the natural drainage flow that follows the topography of the soil.



Pipelines can cut through tile or even make it impossible to improve drainage later.



“Water flows down hill.”

Field Tile Damages

Keep in mind: Depending on the damage to the field tile, it could take 2-3 years before it is clear the tile has been damaged.

Placement of Access Roads and Structures

Best rule of thumb:

Whenever possible, consult the farmers as to the ideal location of structures and access roads.



Seed Corn/ Seed Beans

2017 Seed Company Family Tree

ChemChina plans on completing the purchase of Syngenta in 2017.

CHEMCHINA
China National Chemical Corporation

Syngenta will keep their name and continued to be based in Basel Switzerland

syngenta
Novartis & AstraZeneca
2000
Purchase by ChemChina
2017

GreenLeaf
Traits & Genetics
2004

NK
Corn & Beans
2000

Golden Harvest
Corn & Beans
2004

AgriPro
Wheat
2004

Enogen
α-Amylase Corn
2011

Sold by Beck's & Advanta
Phoenix
Corn
2011

Sold by Burrus & Golden Acres Genetics
Catalyst
Corn
2012

Sold by Rob-See-Co
Innotech
Corn & Beans
2013

Bayer and Monsanto have entered into a definitive merger agreement. Monsanto accepted Bayer's \$66 billion buyout offer in September of 2016.

Bayer CropScience **MONSANTO**

Bayer expects to have the buyout completed in 2018. The name of the merged Crop Science company has not been announced.

MONSANTO
2000
Monsanto established its Agriculture Division in 1960. Monsanto merged with Pharmacia & Upjohn in 2000. Monsanto was reorganized into an agriculture only company in 2000.

CORN STATES
Traits & Genetics
1997

ASGROW
1997

Channel
2004

SPECIALTY
2005

STONE SEED GROUP
2005

GOLD COUNTRY SEED
2006

HURNER SEED
2007

LEWIS HYBRIDS
2007

BAYER
Bayer CropScience
Bayer & Aventis
2002

DEKALB
1998

Fontanelle HYBRIDS
2005

Stewart
2005

Kruger
2006

REA
2007

Jung SEED GENETICS
2007

WestBred
Wheat
2009

Credenz
2014

Dow Chemical & DuPont completed their merger on 8-31-2017. DowDuPont will reorganize into three companies with one focusing on agriculture.

DOW **DU PONT**

The new agriculture company will feature DuPont in its new name. Major seed brand consolidations are expected within the new company.

DOW
Dow AgroSciences
1997

Mycogen SEEDS
1998

DAIRYLAND SEED
2008

BRODBECK SEEDS
2008

pfister
2009

Prairie Brand
2011

Dow Seeds
Canada
2015

Dow acquired Eli Lilly and Company's 40% stake in Dow Elanco in 1997 and renamed it Dow AgroSciences

DU PONT
Seed Division
1999

PIONEER
1999

CURRY
2008

HPT
Hoegemeyer
2010

G2
NuTech
2010

Supreme & X
Seed Consultants
2010

REV
Terral
2010

VP MAXX
AgVenture
2010

RPM
Doebler's
2011

XL
Beck's
2009

POWER PLUS
Burrus
2009

DuPont purchased a 20% stake in Pioneer in 1997 and acquired the remaining 80% of Pioneer in 1999. All of DuPont's regional seed companies are administered through DuPont Pioneer's PROaccess business.

AgReliant GENETICS
50/50 Partnership
Limagrain & KWS
2000

LG SEEDS
1993

AgriGold
WE KNOW CORN
1994

PRIDE SEEDS
Canada
1994

GREAT LAKES HYBRIDS
Generations Ahead
1988

WENSMAN
2000

PRODUCERS
Hybrids
2005

Eureka
2014

CLS

Sources: Walsh Timeline, Cornland Consulting, Farm Journal

Details: Dates listed under seed brands indicate purchase or creation year by parent company

Rev 10. Walsh 9/10/17

CONTRACT
LAND STAFF

Seed Corn/ Seed Beans



Highly Lucrative for Farmer



Herbicides, Fungicides, Seed typically provided by seed company



Contracts are Private



Highly competitive - Farmers get paid production bonuses verses neighboring farmers



Some farmers may forgo traditional crop rotation

Seed Corn/ Seed Beans



**TYPICALLY REQUIRE CENTER PIVOT
IRRIGATION SYSTEMS**



**DISRUPTION OF PRODUCTION RESULTS
IN A LOSS TO FARMER AS WELL AS
SEED COMPANY**



**CAN NOT PAY BASED ON REGULAR
CROP PRICE**



Seed Beans Require a
Very Strict Buffer to
Avoid Cross-pollination

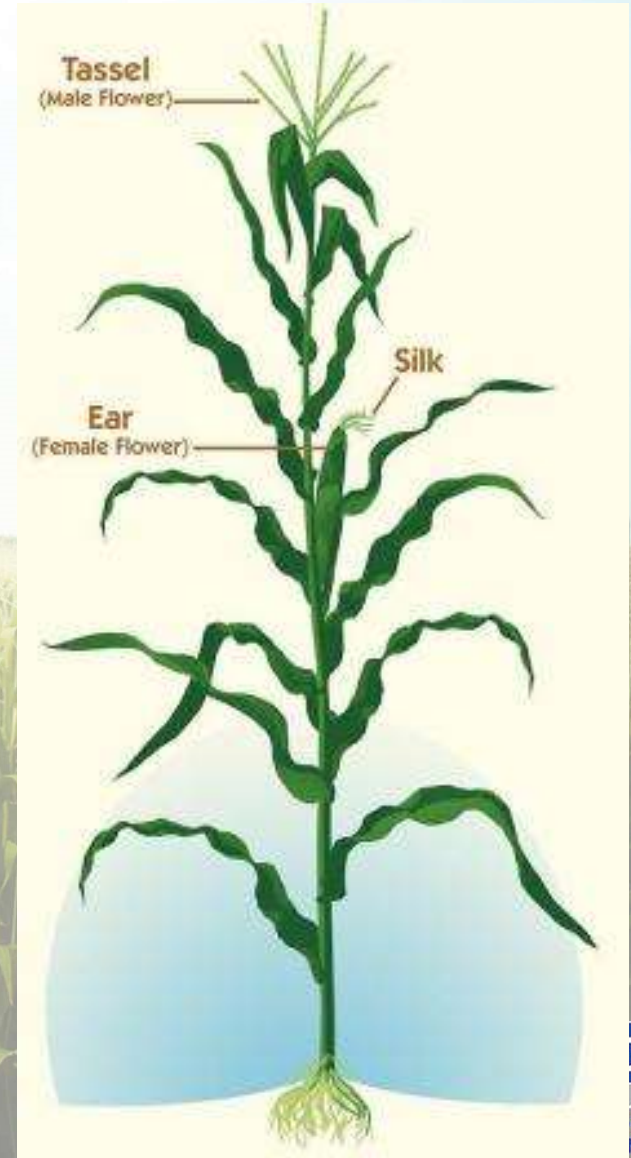
A wide-angle photograph of a cornfield with several people working. The workers are wearing bright orange safety vests and hats. They are scattered across the field, which is filled with tall green corn plants. The sky is overcast with grey clouds. In the background, a line of trees is visible on the horizon.

Corn Detasseling

Corn Detasseling

- 3-5 female rows to every male row
- Female rows get detassled and will bear new hybrid seed
- Interruption of field during irrigation, pollination, or detasseling for construction will reduce yields and endanger entire crop.

Best advice: **Stay out between planting and harvest.**



Corn Detasseling



Seed Corn/Seed Beans

Work with Seed company early on to establish construction strategy.

Seed company can change contracts in advance to eliminate potential losses for Seed company, loss of contract for landowner, and reduce over-all Client risk.



Mysterious Crop Circles in the UK



Not-So Mysterious Crop Circles in the Midwest



Center Pivot Irrigation Systems





Center Pivot Irrigation Systems



Center Pivot Irrigation Systems



Center Pivot Irrigation Systems

Why Center Pivot Systems?

Guaranteed Minimal Amount of H₂O during season

Even water distribution

Efficient water delivery

Multiple crop versatility

Higher yields

Often required by seed companies and specialty crops

Center Pivot Irrigation Systems

“At 2018 prices, the average cost of a new quarter section center pivot (irrigating about 128 acres of the 160 acres), setup in a field with a concrete pad, is about \$90,000. The cost of the pump, well, pipeline, controls and power may add another \$65,000 for a total investment around \$153,000 or near \$1,200 per irrigated acre.”

Source: North Dakota State University

Working with Center Pivot Systems

Center Pivot Systems may be able to be modified to continue irrigating the current acreage amount.

Design construction roads through ROW so that irrigation systems can continue to pass over construction roads during growing season.

Routing Around Center Pivot Systems

1. Farmers with Center Pivot Systems may be less likely to sign an easement that requires modification of their system.
2. Count on \$100K per parcel with Center Pivot Systems in place
3. Include estimates for condemnation.



What kind of “crop circles” are these?

© 2018 Google



Manure Spreading

It's a dirty job, but somebody's got to do it.

Dragline
Manure
Spreading

NorthAmerican **MANURE EXPO 2019**

Putting nutrients back to work

July 31-August 1, 2019 • Fair Oaks, Indiana



REGISTER NOW

NorthAmerican
MANUREXPO
Professionals in Nutrient Management
Fair Oaks 2018 Indiana





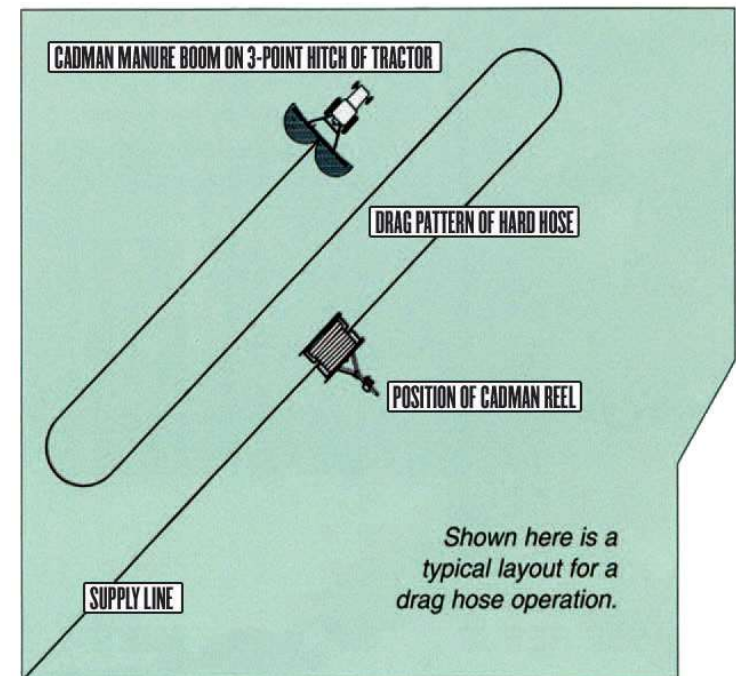
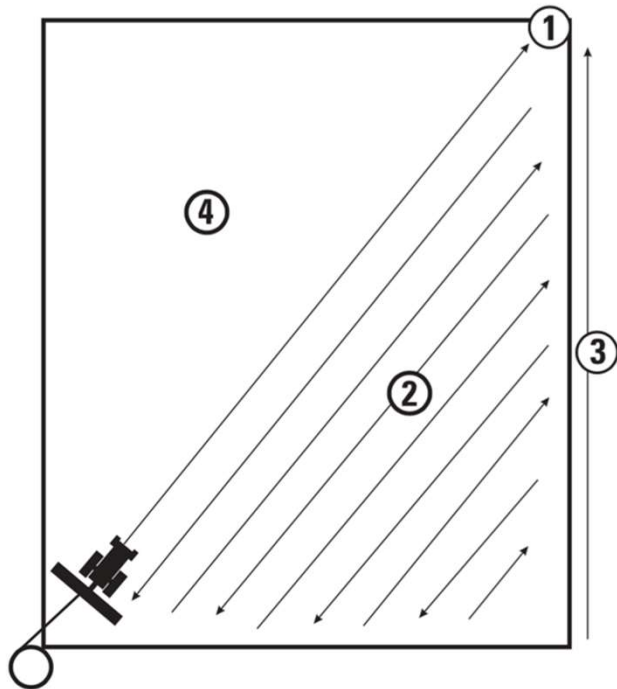
Manure Lagoon



Dragline Manure Spreading



Dragline Manure Spreading



Manure Spreading



Manure must be hauled away



The farther you travel, the more expensive it is



Some CAFO's purchase manure rights



Provides fields with nitrogen, phosphorus and potassium



Cheaper and safer than Anhydrous Ammonia



CAN NOT SPREAD ON SAME FIELD EVERY YEAR



Crop Damages

How much should you pay in crop damages?

Crop Damages



LOSS OF INITIAL CROP



SOIL COMPACTION



**TEMPORARY LOSS OF
PRODUCTION**



**PERMANENT LOSS OF
PRODUCTION**



**DRAIN TILES – MAY TAKE
SEVERAL YEARS TO
IDENTIFY FULL EXTENT OF
DAMAGE**

Possible Formulas for Crop Damages – 100%

Year One – 100% Actual Damages

**Damages for additional years are built
into the price paid for Easement**

Possible Formulas for Crop Damages – 200%

Year One – 100% Actual Damages

Year Two – 50% Damages

Year Three – 30% Damages

Year Four – 20% Damages

Year Five – Expected normal yield

Possible Formulas for Crop Damages – 250%

Year One – 100% Actual Damages

Year Two – 75% Damages

Year Three – 50% Damages

Year Four – 25% Damages

Year Five – Expected normal yield

Possible Formulas for Crop Damages – 300% - 400%

Depending on type of construction and amount of soil compaction, the formula may need to be adjusted.

Federal Crop Insurance



Federal Crop Insurance Corporation

FCIC is a wholly owned government corporation that administers the Federal crop insurance program.

The Federal Crop Insurance Corporation (FCIC) promotes the economic stability of agriculture through a sound system of crop insurance and providing the means for the research and experience helpful in devising and establishing such insurance. Management is vested in a Board of Directors, subject to the general supervision of the Secretary of Agriculture.

Federal Crop Insurance

CROP INSURANCE PRICING

CURRENT PRICING

Commodity	Base Price		Harvest Price	
	Discovery	Final	Discovery	Final
2019 Corn (CZ19)	2/1 – 2/28	\$4.00	10/1 – 10/31	\$0.00
2019 Soybeans (SX19)	2/1 – 2/28	\$9.54	10/1 – 10/31	\$0.00
2019 Green Soy (CZ19)	2/1 – 2/28	\$3.94	10/1 – 10/31	\$0.00
2019 Wheat (KEN19)	8/15 – 9/14	\$5.74	6/1 – 6/30	\$0.00
2019 Canola (ICE 19)	7/15 – 8/14	\$0.1790	6/1 – 6/30	\$0.00

*Price being discovered

Do Yields Seem Reasonable?

<http://www.nass.usda.gov/>

USDA National Agricultural
Statistics Service



United States Department of Agriculture
National Agricultural Statistics Service



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Jun 06, 2019

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2017 CENSUS OF
AGRICULTURE
YOUR VOICE. YOUR FUTURE. YOUR OPPORTUNITY.

Headlines

05/08/19 [ASB NOTICE: NASS to Publish a JSON \(Java Script Object Notation\) File for Principal Federal Economic Indicator Releases](#)

04/19/19 [NEWS RELEASE: NASS Honors Former Employee in 2019 Hall of Fame](#)

04/11/19 [NEWS RELEASE: 2017 Census of Agriculture Data Now Available.](#)

04/04/19 [NEWS RELEASE: USDA Census of Agriculture One Week Away.](#)

03/28/19 [NEWS RELEASE: United States Hog Inventory Up 2 Percent](#)

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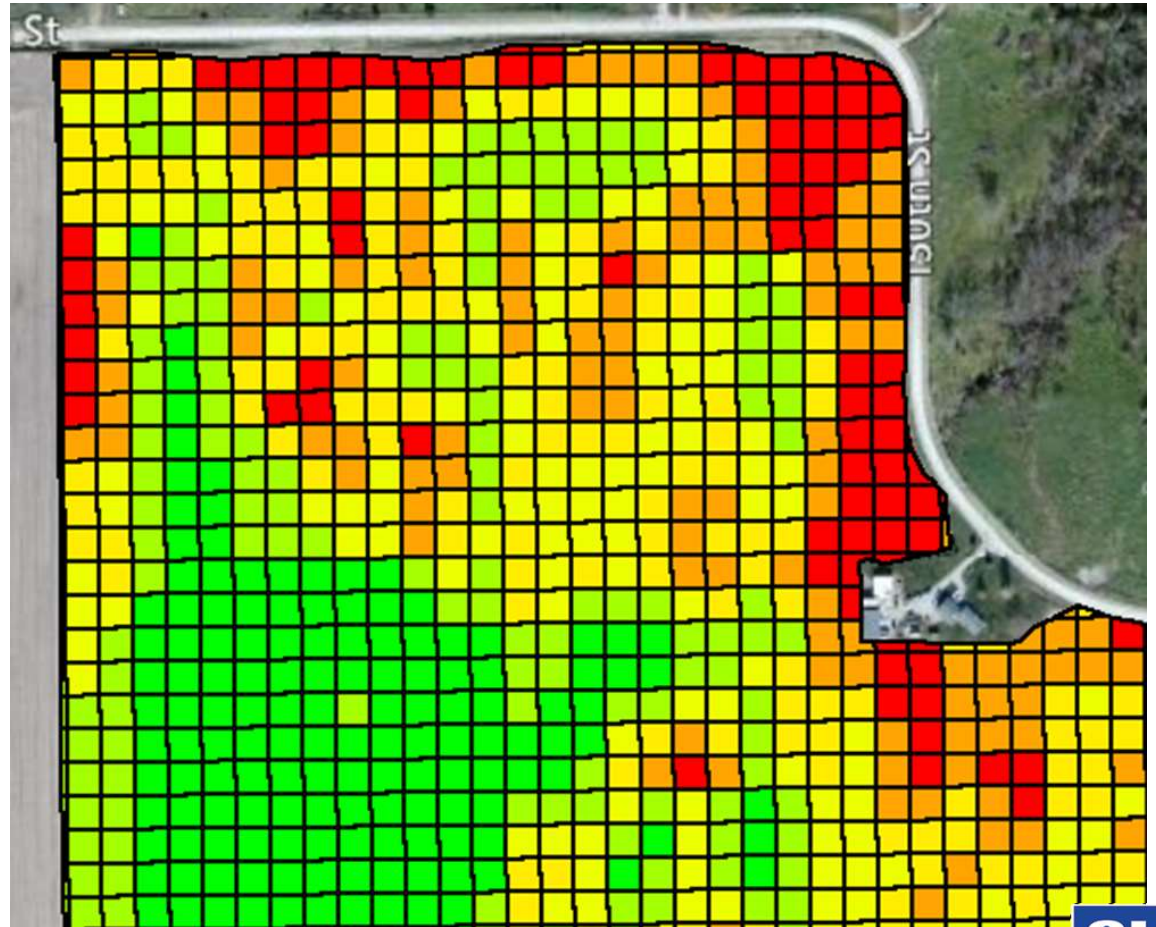
USDA-NASS
@usda_nass

The @usda_nass area sampling frame uses satellite imagery to indicate percent of land used in cultivation. Strata include non-agricultural land, urban use, agri-urban, and water. View our clickable Land Use Strata maps here: nass.usda.gov/Research_and_S...



Blog

Do Yields
Seem
Reasonable?



How to determine cost of specialty crops, livestock, specialty labor rates and other damages?



Contact

Contact County Extension
Office



Contact

Contact another specialty
grower for advice



Contact

Contact a Contractor (i.e.
crop dusting service,
biosolids, deer farmers,
etc.)



Contact

Do a search for regional or
state "Custom Farm Labor
Rates"



Working with the Amish

Working with the Amish

Met with the Bishop

Met with the Amish Bank

Typical Amish “Church” – 10-20 Families

Each Church makes own rules

Many different holidays

Weddings throughout the week

Amish and English

Working with the Amish

Friendly – practical jokers

Financially conservative

Frequently use attorneys

They typically have Social Security cards – although exempt

They DO pay taxes

Land-locked – May not be willing to relocate regardless of financial offer

Working with the Amish

TheSOURCE

News for NIPSCO Employees | May 1, 2015

NIPSCO real estate department gets a surprise reaction from a land request

NIPSCO Land Agent Jon Clark had been working with many Amish communities as a part of the Reynolds Topeka Project, but one property owner surprised Clark with his response to the request to tear down a barn.

"Ironically, the Amish do not use electricity, yet they have to have a transmission line running on their property," Clark said.

The Reynolds Topeka Electric System Improvement Project will strengthen NIPSCO's electrical system through the construction of a new 100-mile electrical transmission line that will connect NIPSCO's Reynolds substation, Burr Oak substation and



Around 150 Amish men from more than 10 different Amish churches arrive at the barn to assist the landowner in moving the barn to a new foundation out of the way of a new electric transmission line.

250 Men
100 Children
50 Women
10 Different
Churches

Water, Punch
and Cookies



5 Things to Never Ask a Farmer

1. How many acres do you farm?

5 Things to Never Ask a Farmer

Price per Bushel – Inputs = Profit per Acre

5 Things to Never Ask a Farmer

Inputs (Direct) = Fertilizer/Chemicals/Seed

Fuel

Repairs/Maintenance

Machinery Costs

Irrigation Costs

Cash Rent

Crop Insurance

Storage

Drying

5 Things to Never Ask a Farmer

Inputs (Indirect)

Depreciation

Property Taxes

Interest

Insurance

5 Things to Never Ask a Farmer

- 1. How many acres do you farm?**
- 2. How many cows/pigs/livestock do you have?**

5 Things to Never Ask a Farmer

- 1. How many acres do you farm?**
- 2. How many cows/pigs/livestock do you have?**
- 3. How much did the combine cost?**

5 Things to Never Ask a Farmer

- 1. How many acres do you farm?**
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- 3. How much did the combine cost?**
- 4. How do you care for the animals? Tread lightly.**

5 Things to Never Ask a Farmer

- 1. How many acres do you farm?**
- 2. How many cows/pigs/livestock do you have?**
- 3. How do you care for the animals? Tread lightly.**
- 4. How much did the combine cost?**
- 5. How much do you receive in Government subsidies?**
 “Trump” Money (Marketing Facilitation Program)
 Conservation Practices Subsidies

Wind Farms/Solar Farms



National Average Farm
Size - 2018

443 Acres

Ranking Of States With The Largest Farms

United States		441	442
Rank	State	2015	2016
1	Wyoming	2,621	2,612
2	Montana	2,171	2,179
3	New Mexico	1,749	1,756
4	Nevada	1,417	1,490
5	South Dakota	1,383	1,397
6	Arizona	1,333	1,321
7	North Dakota	1,307	1,312
8	Alaska	1,092	1,092
9	Colorado	927	938
10	Nebraska	928	934
11	Kansas	762	770
12	Utah	608	608
13	Texas	537	537
14	Idaho	484	486
15	Oregon	474	474
16	Oklahoma	438	438
17	Washington	408	409
18	Illinois	365	370
19	Minnesota	352	353
20	Iowa	349	351



99% of America's Farms are
Family-Owned.

But only Half are Family-Farmed.

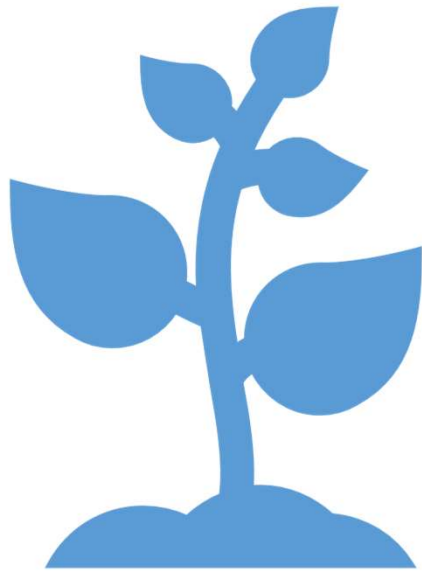
If a Farmer wants to make more money...

1.Engage in practices to get a better yield.

2.Farm more ground.

A close-up photograph of a cannabis plant, focusing on a developing bud. The bud is a dense cluster of small, green, serrated leaves. The surrounding leaves are also green and serrated, with some showing signs of being eaten. The background is a soft, out-of-focus green.

What about...???



Farming 101

Understanding the Impacts of ROW
on Agriculture



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Thank you!