NRCS Long Range Plan
Liberty County, Montana
In Partnership with the
Liberty County Conservation District

Collaborative effort: NRCS FO and LCCD - February 7, 2020

Section I INTRODUCTION

VISION

LCCD – Having a Community that is Economically Stable with the Natural Resources Conserved.

NRCS – Productive Lands – Healthy Environment

MISSION

LCCD – To provide leadership, Education and Administration of Programs that Conserve, Improve and Sustain our Natural Resources and Environment.

NRCS – Helping People Help the Land

PURPOSE

LCCD – To carry out a complete conservation resource program which includes soil health, erosion control, soil management, land improvement, wildlife management, recreational and land use adjustment, and water conservation and quality through watershed planning.

NRCS – NRCS provides America's farmers and ranchers with financial assistance to voluntarily put conservation on the ground, not only helping the environment but agricultural operations too.

PARTNERS

- Liberty County Conservation District: Representing Private Landowners, Community Members, Sage Creek Watershed Alliance, Marias Watershed Association, Marias River Livestock Association, and Special Interest Groups etc……
- Hill County Conservation District
- Toole County Conservation District
- Montana Salinity Control Association
- USDA – MLRA – Major Land Resource office
- USDA – Farm Services Agency
- Liberty County
- Town of Chester
- MSU Extension
- Department of Natural Resources and Conservation - State Lands Division
- USDI - Bureau of Reclamation
- USDI – Bureau of Land Management

- Montana Fish Wildlife and Parks
- US Fish and Wildlife Service
- MT Bureau of Mines and Geology

TIME FRAME

The data and analysis spans 1969 – to date; spanning 50 years of locally driven conservation effort. This is a dynamic analysis that will be added to as we move forward. Local Work Group meetings have been held through the years; Local Working Group history for 1997- 2018 and the corresponding resource concern priorities are on file at the Chester Field Office.

The Long Range Plan is a living document that may be revised based on changes in landuse, resource conditions or treatment priorities as determined by the LCCD and the Chester/Shelby NRCS Work Unit. The LRP will be reviewed by the NRCS and LCCD annually, with review by the Local Working Group every other year.

Section II NATURAL RESOURCE INVENTORY

Description of Liberty County (Source: 2002, USDA-NRCS Soil Survey of Liberty County)

Liberty County is in the north-central part of Montana, bordered by Canada to the north, Hill County to the east, Chouteau and Pondera Counties to the South and Toole County to the west. Liberty county has a land area of about 926,100 acres or 1447 square miles. Chester, the county seat, is in the central part of the county.

About 65 percent of the survey area is used as cropland, 34 percent as rangeland and 1 percent is woodland. The principal crops are winter wheat, spring wheat and barley, with pulse crops across rotations. The main economic enterprises are growing small grains and raising beef cattle.

Elevation ranges from 2,750 feet to 6,958 feet. The average annual precipitation ranges form 10-14 inches with the Sweet Grass Hills receiving up to 28 inches. The average annual temperature ranges for 38-45 degrees F. The growing season ranges for 90 to 125 days.

Existing Assessments (not all inclusive)

2016 Liberty County Noxious Weed Plan

May 2008, Marias River (Bear River: Kai'yo Isisakta) Stream Corridor Assessment

2004, Salt Loads in an Intermittent Prairie Stream: Sage Creek Hydrogeologic Basin, Northern Montana, Kathleen J. Miller, Montana Bureau of Mines and Geology

2002, USDA-NRCS Soil Survey of Liberty County (mapping 1990-1992)

February 2000, Sage Creek Watershed Alliance Area Wide Conservation Plan and Water Restoration Action Strategy

May 1999, Sage Creek Watershed Area Wide Conservation Plan

December 1997, Tiber Reservoir Rangeland Resource Inventory and Monitoring Plan

February 1996, Why Watersheds? and Marias River Watershed Photo Album

1996 Sage Creek Watershed Rapid Area Assessment

1996 -2004 Sage Creek Watershed Photo Albums

1993 - 1997, Sweetgrass Hills – LCCD East Butte Groundwater Study (important benchmark groundwater quality analyses)

1997 – 1999, Sage Creek Watershed Stream Monitoring

April 1983, Watershed Protection Plan for Sage Creek Watershed

1979 – 1987, 70mm Color Infra-red Negatives for Saline Seep Mapping of Liberty County

1976, Our Heritage – Historical Events in Liberty County

June 1969, Water Resources Survey of Liberty and Toole counties, Montana – Part I: History of Land and Water Use on Irrigated Areas and Part II: Maps Showing Irrigated Areas in Colors Designating the Source of Supply

Demographics (Source: U.S. Census Bureau, Population Estimates Program (PEP), 2010)

2010 U.S. CENSUS Bureau Statistics				
Population Liberty County	**2,339**		**Population Characteristics**	
Age and Sex			Veterans, 2013-2017	132
Persons under 5 years, percent	6.40%		Foreign born persons, percent, 2013-2017	0.70%
Persons under 18 years, percent	21.40%			
			Education	
Persons 65 years and over, percent	20.10%		High school graduate or higher, percent of persons age 25 years+, 2013-2017	74.70%
			Bachelor's degree or higher, percent of persons age 25 years+, 2013-2017	16.30%
Female persons, percent	51.70%			
Race and Hispanic Origin			**Income & Poverty**	
White alone, percent			Median household income (in 2017 dollars), 2013-2017	$46,641
	97.00%		Per capita income in past 12 months (in 2017 dollars), 2013-2017	$36,525
Black or African American alone, percent(a)			Persons in poverty, percent	
	0.50%			18.50%

2010 U.S. CENSUS Bureau Statistics – Liberty County Population Characteristics continued				
American Indian and Alaska Native alone, percent(a)	0.70%			
Asian alone, percent(a)	0.20%		**Geography**	
			Population per square mile, 2010	1.6
Native Hawaiian and Other Pacific Islander alone, percent(a)	Z**		Land area in square miles, 2010	1,430.05
			FIPS Code	30051
Two or More Races, percent	1.60%			
Hispanic or Latino, percent(b)	0.70%		**Z: Value greater than zero but less than half unit of measure shown	
White alone, not Hispanic or Latino, percent	96.40%			

Land Base (Source: USDA Census of Agriculture 2012, www.nass.usda.gov/AgCensus)

County	Square Miles of County	Square Miles Water	Square Miles Land	Acres in the County	# of Farms	Acres in Farms	Average Size of Farm	% Pasture land	Acres Grazing Lands	% Crop Land	Acres in Crop	% Wood Land	Acres in Wood land	% other	Cattle and Calves	Of that Beef Cattle	Milk Cows and Heifs that have calved	Sheep and Lambs	Hogs and Pigs
Liberty	1,447	17	1430	926,080	304	897,946	2954	31.30%	289,863	67.30%	623,251	-	**	1.40%	15,100	10,300	500	D	16,000

Ag Operators (Source: USDA – FSA and USDA Census of Agriculture 2007, 2012 and 2017 www.nass.usda.gov/AgCensus)

As of November 2019, Liberty County has 756 farms by operator. This equates to approximately 350 operations. Demographics specific to Ag Operators and Principal Producer Characteristics indicate that numbers of young producers (younger than 35 years) is increasing with 11 in 2007, 29 in 2012 and 34 in 2017. The average age of Principle Producers in Liberty County remains static at 57-58 years old.

Economic Characteristics (Source: USDA Census of Agriculture 2012, www.nass.usda.gov/AgCensus)

Economic Characteristics	Liberty
Farms by Value of Sales	
Less than $1000	75
$1,000 to $2,499	6
$2,500 to $4,999	4
$5,000 to $9,999	4
$10,000 to $19,000	9
$20,000 to $24,999	-
$25,000 to $39,999	10
$40,000 to $49,999	3
$50,000 to $99,999	36
$100,000 to $249,999	50
$250,000 to $499,999	57
$500,000 or more	50

Operator Characteristics		
Farming		226
Other		78
Principal Operators by Sex		
Male		252
Female		52
Average age of Principal Operator (yrs)		57.1
All operators by race		
American Indian or Alaska Native		-
Asian		1
Black or African American		-
Islander		-
White		483
More than one race		-
All operator of Spanish, Hispanic or Latino Origin		-

Additional Agricultural Statistics from the "2012 Census of Agriculture County Profile are on file at the NRCS Chester Field Office.

Soil (Source: 2002, USDA-NRCS Soil Survey of Liberty County and FO knowledge)

Most of the soils in Liberty County formed in glacial till or in glacial outwash material. Some of the soils formed in alluvium derived from mixed sources, and other soils formed in material that weathered from shale, sandstone, limestone or igneous rocks.

The soils that formed in glacial till, such as the Telstad or Joplin series, generally are loamy, while the Scobey and Kevin series, generally are clayey. Soils that formed in interbedded sandstone and shale, such as the Cabbart and Delpoint series, are generally loamy; soils that formed in shale, such as the Yawdim series, are clayey. The soils that formed in mixed alluvium derived from glacial till, sandstone, or shale, such as the Havre series, are loamy.

Many soils in the survey area have accumulated lime, sodium and other salts from the parent material. The salts and sodium make these soils slightly to moderately saline or alkali, and limit the amount and kind of plant cover. In addition, the accumulated lime in the soil acts similar to freeze drying and results in soils that react to wind like sand and are thus prone to wind erosion.

The vast majority of the soils are considered Highly Erodible Land with predominant Wind Erodibility Groups of 3, 4L and 6 with a predominant Soil Tolerance level at 5 tons/acre/year. Prior to the mid 1990s, most operations were conventionally tilled and were in 20 rod strips (330 ft wide). Through the years, the evolution has been toward direct seeding and no-till to reduce disturbance and trips over the field. Due to this and wider equipment, fields now range from ¼ mile to +1 mile in widths. This can be a serious concern in below average yielding years or when rotating with lower residue producing crops. Essentially, in order for the soil to be protected from blowing, it needs protection in the form of growing vegetation, stubble or residue. Generally, the wider the field, the more residue needed to keep the field from blowing.

The Sweet Grass Hills, in the northern region of Liberty County, are a complex of igneous intrusions – essentially unformed volcanoes. These intrusions occurred when magma pushed up into the sedimentary bedrock during a

period of geologic activity approximately 50 million years ago. The sedimentary rock subsequently eroded, leaving the more resistant igneous rock exposed.

Predominant soil concerns range from soil erosion to soil health (organic matter depletion, aggregate instability and soil organism habitat loss or degradation). The LCCD and NRCS, as well as the efforts of Local Work Group, have focused conservation efforts on the 5 soil health principles – soil armor, minimizing soil disturbance, plant diversity, continual live plant/root and livestock integration.

Water

There are four, 8-digit Hydrologic Units in Liberty County. They are: the Marias Watershed (HUC: 10020203), the Sage Creek Watershed (HUC: 10050006), the Willow Creek Watershed (HUC: 10030204) and the Upper Milk Watershed (HUC: 10050002). The Marias encompasses most of the county, stretching down from the Sweet Grass Hills through the core of Liberty, and also includes all drainages south of Hwy 2. The Willow Creek Watershed flows down the west edge of Liberty and east edge of Toole counties. Sage Creek flows diagonally from the north side of the Sweet Grass Hills toward the SE into Hill county. The Upper Milk Watershed dips into the NW and the NE corners of Liberty. More detailed information (and an interactive map site) concerning potentially impaired waters as well as the 303D listed waterbodies, along with non-supporting uses, causes and sources may be found on the Montana Department of Environmental Quality (DEQ) website http://deq.mt.gov/Water/Resources/report .

The Marias and Willow Creek Watersheds flow into the Marias River which flows into the Missouri River at Loma, MT. Sage Creek flows into the Big Sandy Watershed, which flows into the Middle Milk, and subsequently the Lower Milk. The confluence of the Milk River into the Missouri River sits between Nashua and Frazer, NE of Fort Peck Reservoir. The two small areas of the Upper Milk flow into the Middle Milk and then the Lower Milk which again, flows into the Missouri River between Nashua and Frazer, NE of Fort Peck Reservoir.

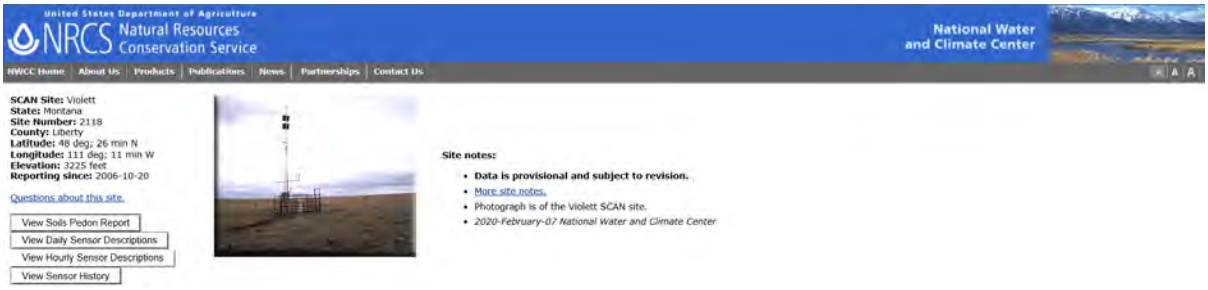
Community water systems supplying potable water to areas challenged with lack of water and/or ground water quality issues include Galata, Sage Creek, Hill Co -Joplin, South Chester, and Tiber. The Galata water line sits within the Willow Creek Watershed, supplying both Liberty and Toole county producers.

Liberty County has approximately 4000 acres under irrigation; crop and hay. Most of the irrigation is adjacent to the Marias River and Lake Elwell (Tiber Dam). Most of these are alfalfa and/or grain rotations. Water is pumped from the lake or river. There are a few pivots located within the Sage Creek Watershed as well. These rotations consist of small grains, alfalfa and specialty crops. Water is mostly gravity flow within the Sage Creek Watershed. In all county areas, producers have been converting from flood irrigation to pivots through the years.

Lake Elwell/Tiber Dam, on the Marias River, was built between 1952-1956. It is located in the SW area of the county. Initially designed for irrigation, the lake is a popular fishing and recreation site for miles around. This earthen dam is 211 feet tall with a total capacity of 1.5 million acre feet of water.

The Marias River is the only perennial stream in the county and is subject to 310 laws/permitting with the Liberty County Conservation District.

Six rain gauges were established in the Sweet Grass Hills in the early 1980s and have consistently been managed through the years by local SCS/NRCS. Three of these were converted to automated precipitation sites in June 2011, however the automated sites have recently been discontinued due to staffing shortages and time constraints on the MT Snow Survey Staff. There is one Soil Climate Analysis Network (SCAN) site, established in 2006, located on the west central edge of Liberty county. One may access this data at:
https://wcc.sc.egov.usda.gov/nwcc/site?sitenum=2118



Water Quality is a resource concern due to salinity as well as nutrient (organic and inorganic) and pesticide application. Producers are cognizant of these issues and strive to develop plans to address and abate. Through the years, NRCS and the LCCD have reached out to producers financially and with technical assistance to help address the issues, both naturally inherent and those artificially created. In the Sage Creek Watershed, there is aerial photography dating back to the 1940s (when native vegetation was predominant) as well as extensive infrared photography established in an effort to document saline activity in the area.

Air and Energy

Generally speaking, Air Quality is good. There are times during spraying of chemical fallow, harvesting of crops and/or during fire season (mountain wildfire smoke passing over the area) when Air quality can be degraded. Since 2005, producers have been utilizing practices such as use of drift reducing nozzles, lowering pressures, lowering boom heights and utilizing adjuvants to reduce pesticide drift as well as adopting GPS targeted spray application/electronic control technology.

Energy concerns range from trips over the field with implements to motors for drying grain or irrigation. A few farmsteads have invested on their own, and with financial assistance, practices to promote more energy efficient lighting.

Plants and Animals

Wheat is the predominant production crop and is typically grown in a direct seed or no-till system. Wheat has been the predominant crop for more than 70 years. Innovative producers over the past 15 years have begun to add other crop types into their rotations to help with diversity. Crops other than small grains now include alfalfa, garbanzo beans, lentils, canola/mustards, flax, and occasionally more extreme crops for this area of sunflowers, corn and hemp. In the past 5 years, we have seen more interest in producers willing to try multispecies cover crops to bring diversity and live roots in the soil. This concept is in its infancy and may conflict with crop insurance rules and a production driven market.

Troublesome cropland weeds include kochia, Russian thistle, cheat grass and wild oats. Documented (tested) and surmised (due to weed patterns across fields showing lack of control) chemical resistance of weed species is apparent. Producers have utilized stronger chemicals such as paraquat to try and check the issues they are experiencing.

Conservation Reserve Program acres were at their 25% cap from the late 1980s through mid 2010s. As CRP acres expired, producers looked at them as potential organic farm acres and began returning them to production. CRP stands ranged from monocultures of crested wheatgrass in the beginning to mixes of introduced and native species in the later years. There was also willingness to seed land to rare and declining habitat. The vast majority of CRP seedings, from a vegetative standpoint, have been successful with introduced plantings taking 1-2 years to become established and native plantings 3-4 years for establishment. All have benefited from repeated mowing in the establishment years, concentrating on developing a viable stand early on. Once the CRP grass stand becomes

established, the primary nesting period (May 15 – July 15) becomes priority in stand management. This may change with Farm Bills.

Alfalfa in rotation has been utilized in the Sage Creek Watershed area as a perennial approach to address identified saline seep recharge areas. Flexible, re-cropping and continuous cropping systems continue to be utilized to manage salinity as well.

According to the 2016 Liberty County Noxious Weed plan, the following noxious weeds are documented in Liberty County:

Noxious Weeds	Acres Infested
Canada thistle	20,000
Dalmation toadflax	2
Diffuse knapweed	30
Field bindweed	600
Hoary alyssum	30
Houndstongue	250
Leafy spurge	150
Oxeye daisy	1
Purple loosestrife	2
Russian knapweed	1,200
Spotted knapweed	1,300
Whitetop	15

Rangeland Ecological Sites within Liberty County are mostly “MLRA 52X Brown Glaciated Plains”, in the main area of the county and “MLRA 46X Northern Rocky Mountain Foothills” in the Sweet Grass Hills. Similarly, rangeland species vary from rough and Idaho fescue and Bluebunch wheatgrass in the Sweet Grass Hills to the more droughty sites in the remainder of the county boasting western, thickspike and sandberg wheatgrasses to prairie junegrass, sedges and blue grama.

Riparian areas along the Marias River were assessed in May 2008 and can be found in detail in the office publication titled, “Marias River (Bear River: Kai’yo Isisakta) Stream Corridor Assessment”. Also, the Marias River is discussed in the Montana Statewide Fisheries Management Program and Guide found at http://fwp.mt.gov/fish .

Livestock include beef, swine, sheep, horses, poultry (fryers/layers/turkeys/ducks), and limited dairy.

Wildlife common in Liberty include whitetail, mule deer, antelope, elk, moose, pheasants, sharptail grouse, Hungarian partridge, and waterfowl on reservoirs. Again, there are no perennial streams except for the Marias River. There is a variety of bird species (song and raptor) present.

Threatened and endangered species listed in Liberty county are: red knot (Threatened), grizzly bear (Threatened), whitebark pine (candidate). Additional species are on the Species of Concern list for the Liberty county include: Mammals- black-tailed prairie dog, hoary bat, grizzly bear; Birds-northern goshawk, sprague’s pipit, golden eagle, great blue heron, burrowing owl, ferruginous hawk, chestnut-collared longspur, veery, baird’s sparrow, bobolink, loggerhead shrike, clark’s nutcracker, long-billed curlew, McCown’s longspur, brewer’s sparrow; Reptiles- greater short-horned Llizard; Amphibians- great plains toad; Fish- blue sucker, Iowa darter, paddlefish, sauger;

Invertebrates-gray comma; Plants – gymnosperm-whitebark pine; Flowering Plants – dicots – northern buttercup, scribner's ragwort, long-sheath waterweed.

Other wildlife include skunks, porcupine, gophers, badgers, fox, coyote, wolves, black bear, bobcat, mountain lion, mink, weasels, rock chucks, and a potential wolverine sighting.

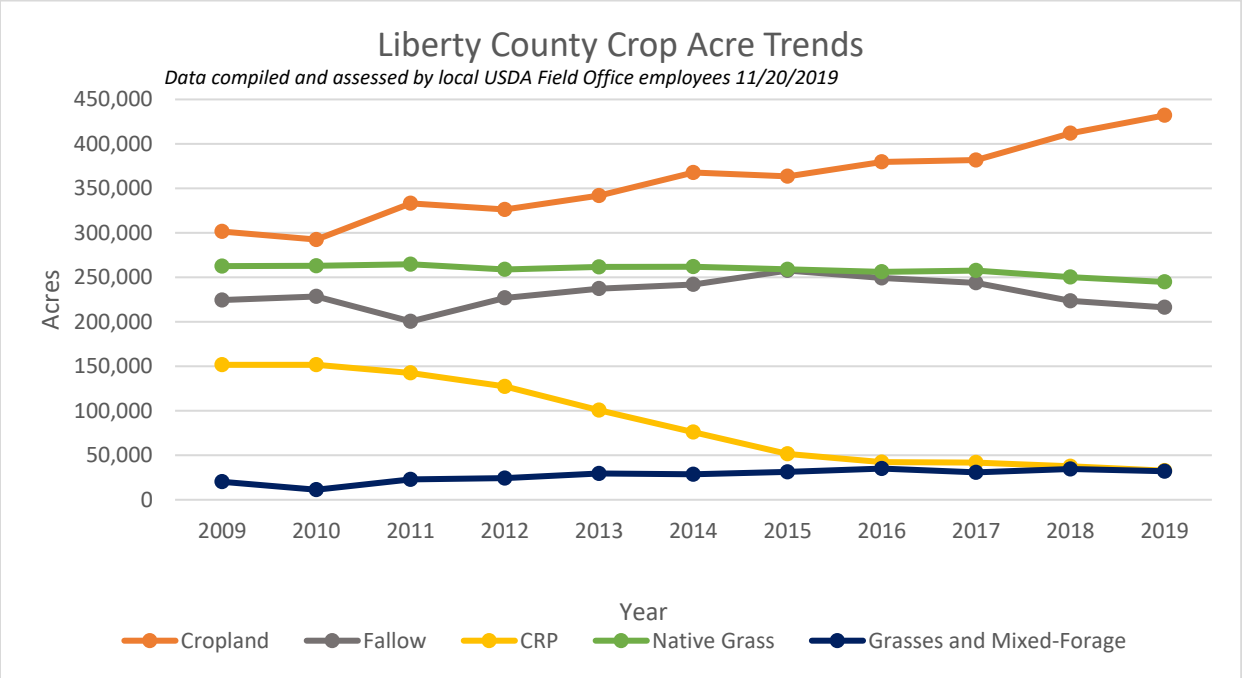
More species of concern information along with Montana's Wildlife Action Plan may be found on the Montana Fish Wildlife and Parks website http://fwp.mt.gov/fishAndWildlife/conservationInAction/actionPlan.html.

Chronic Wasting Disease (CWD) is a concern in Liberty County as well as potential Feral Swine issues on the horizon along the Canada/US border. CWD is a fatal disease that can affect the nervous system of mule deer, whitetail deer, elk and moose. According to the USDA Animal and Plant Health Inspection Service, feral swine are an aggressive, invasive species with the potential to bring disease and damage to agriculture, natural resources, wildlife and public health and safety. The Province of Alberta neighbors are taking a proactive approach; Liberty and Toole CDs are discussing outreach and information meeting efforts for area producers through the "Squeal on the Pigs" MT Department of Livestock campaign.

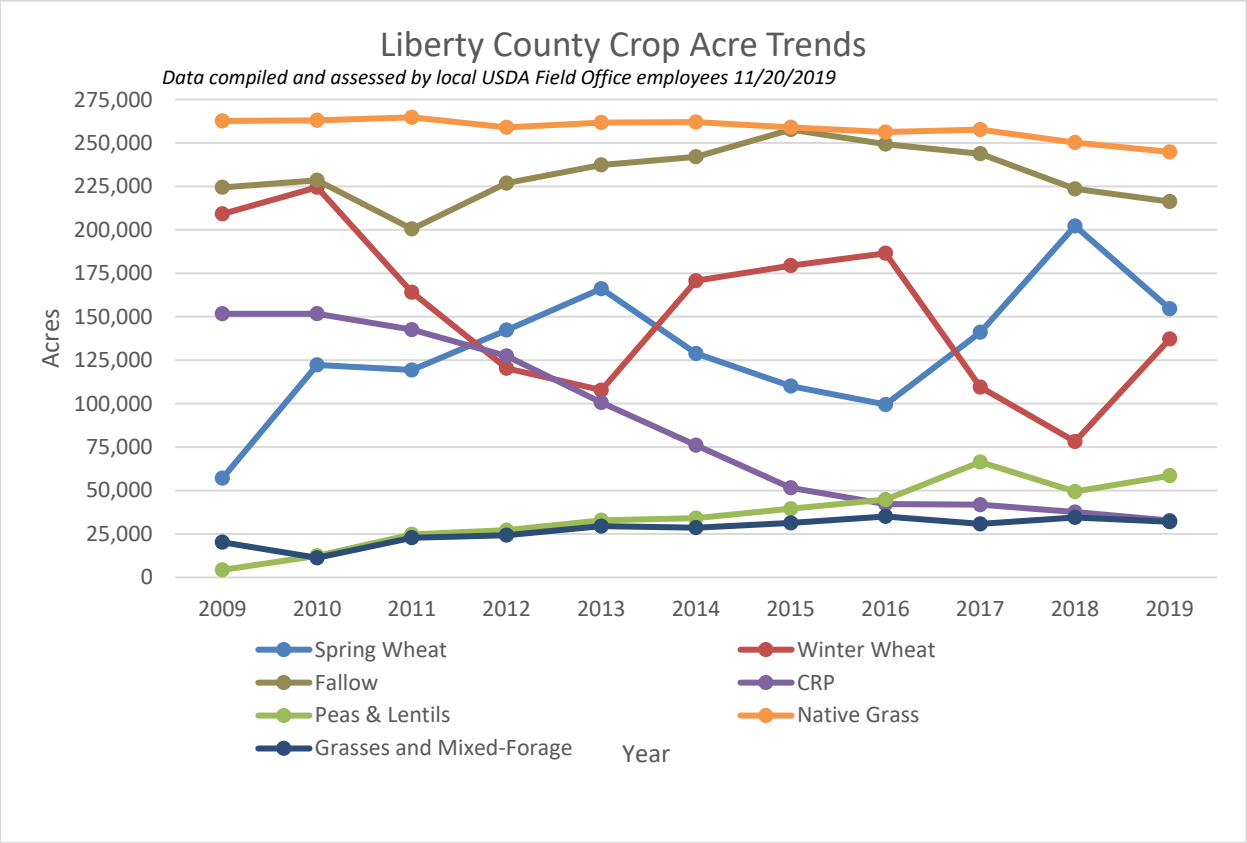
Section III CONSERVATION ACTIVITY ANALYSIS

The following tables were compiled from the annual Acreage Summary reports tracked by the USDA – Farm Services Agency in Liberty County.

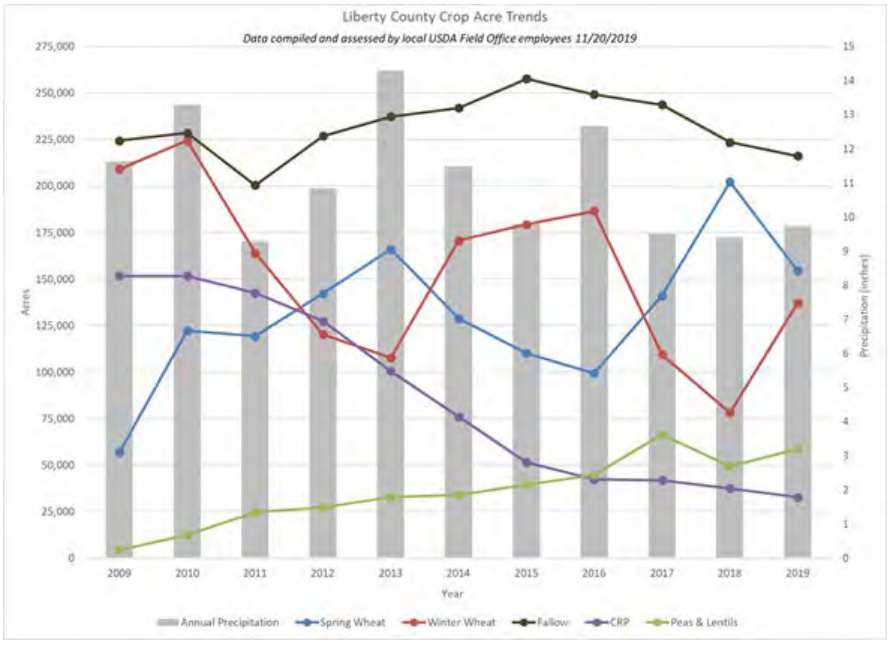
Cropping Trends Including Native and Perennial Forage 2009 – 2019



Cropping Trends Itemized by Major Cropping Types 2009 – 2019



Cropping Trends specific to Grain, Peas/lentils, Fallow and CRP with reference to Annual Precipitation received 2009 - 2019



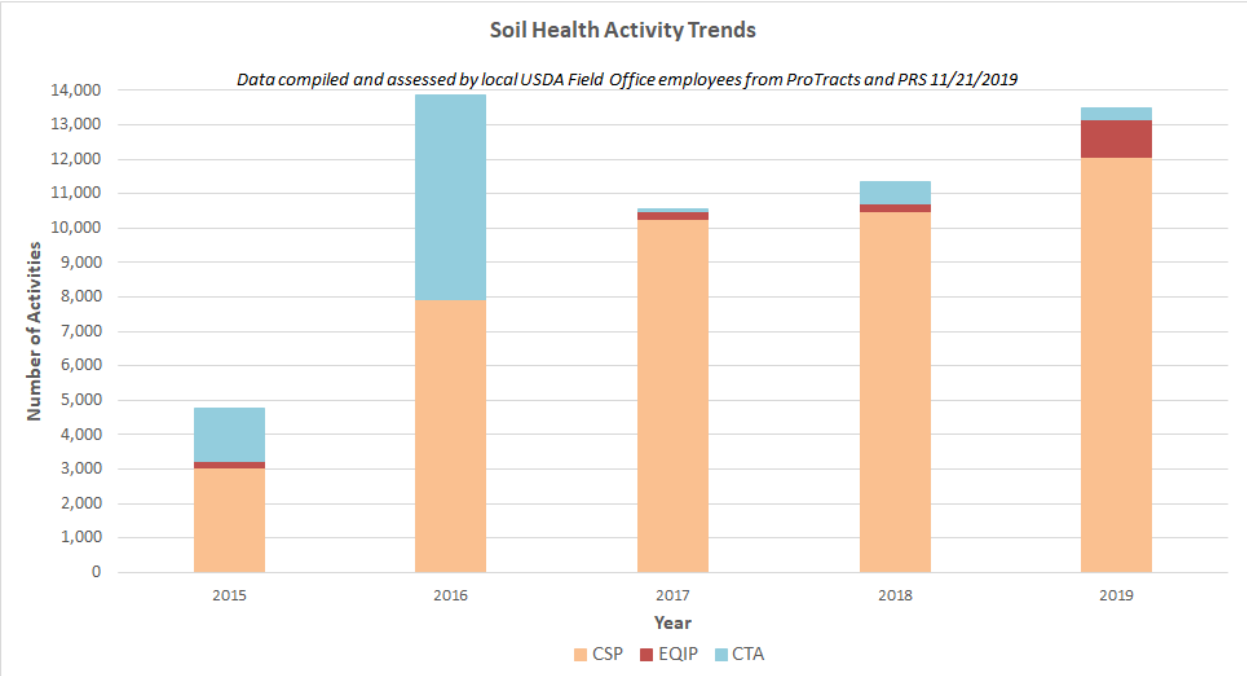
The above Cropping Trend Graphs prompt the following observations and discussion points:

- Historically, when conditions (moisture) allow in the fall, more acres are planted to winter wheat and fewer to spring wheat. If winter wheat does poorly, acres are reseeded to spring wheat. Spring wheat and winter wheat are typically inverse of each other, it would seem that at this juncture, most producers will have "X" acres in wheat no matter what.
- Given the data range, peas/lentils are a relatively new commodity. It appears that when their acreage increases fallow declines; an important observation in view of soil health. Note that fallow is not differentiated between conventional and chemical. None the less, soil health type rotation discussions may be a focus to develop.
- CRP declines as acres come out of contract. This graph doesn't really show well where those acres are going. Generally, cropland does increase as CRP decreases.
- Fallow appears to increase – coinciding with CRP transitioning back to crop production
- By including annual precipitation, we were hoping to correlate planting decisions to moisture. At this point, there is no apparent correlation.

Partner Efforts The major continuous partners to SCS/NRCS in Liberty County are the Liberty County Conservation District (circa early 1951), the Sage Creek Watershed Alliance (circa early 1980s) and the Marias River Watershed Group (circa late 1990s). The LCCD has been instrumental in promoting a variety of conservation efforts over the years through education on soil erosion, salinity, streambank stabilization and most recently soil health promotion. The SCWA is focused on salinity and water quality in the NE area of the county. The MRW targets primarily water quality and weed and invasive species issues. The strength of all three is their grass-roots, local foundation. All involved have a genuine appreciation for the resources and of course community livelihood/sustainability.

Resource Needs Developing Positive innovation includes interest in Soil Health, Cover Crop and most recently, composting teas on a small and large scale of interest. Possible adverse issues on the rise include chemical resistant weeds, chemical use such as paraquat, increased tillage, salinity and soil acidity, the return of tillage as an acquiescing lesser cost/acre, CWD and potential Feral Swine concerns near the border in Alberta.

NRCS Conservation Practices The soil health message is gaining momentum as well as interest. Soil Health is the priority. Producers have shown innovation by attending workshops and embracing programs such as the Conservation Stewardship Program, the Environmental Quality Incentive Program and through Conservation Technical Assistance to capture this focus. The following graph shows this positive trend through the application of direct and indirect Soil Health activities such as, conservation crop and resource conserving crop rotations, no-till, cover crops, deep rooted crops, converting cropland to grass based agriculture and through assessment and tracking of benefits via soil health nutrient tools. To rein in now by not focusing effort and financial opportunities on Soil Health opportunities would be a setback.



Section IV NATURAL RESOURCE PROBLEMS AND DESIRED FUTURE OUTCOMES

Resource Concern Focus Liberty and Toole Conservation Districts and the NRCS Work Unit are united in focusing efforts on the 5 principles of soil health – That is, keeping the soil armored/protected, minimizing soil disturbance, plant diversity, live plant/roots in the soil and integrating with balanced livestock management. While we know producers have completed various aspects, it is the synergistic benefits of all principles working together that will help turn the tide.

Resource Desired Future Condition Given the direction and support acquired through the Local Work Group Process (See Section V), we hope to continue to embrace the soil health education crusade. Through this singular endeavor, producers and community members will be able to realize their priorities as outlined through the Local Work Group Process.

Objectives To promote on a daily basis, through education, technical assistance and program opportunities, each of the 5 principles of soil health.

Section V
PRIORITIZATION OF NATURAL RESOURCE PROBLEMS AND DESIRED OUTCOMES

The 2019 Local Work Group met in 2 sessions, March 14, 2019 and April 3, 2019, to allow for attendees with day or night schedule conflicts. The Liberty County Conservation District spearheaded and chaired the meeting as usual. The meetings yielded the same, consistent priorities as in years past. The tallied results are as follows:

1) Soil health/Soil quality (organic matter depletion, aggregate instability and soil organism habitat loss or degradation)
2) Ag sustainability
3) Ag productivity
4) Nutrient management
5) Soil erosion (wind, classic and ephemeral gully)

Following not far behind the above concerns are:

6) Food and fiber production
7) Rural land use
8) Grazing lands tied point wise with wildlife/fish
9) Ag land conversion
10) Pesticide management tied point wise with water availability
11) Water quality tied point wise with recreation

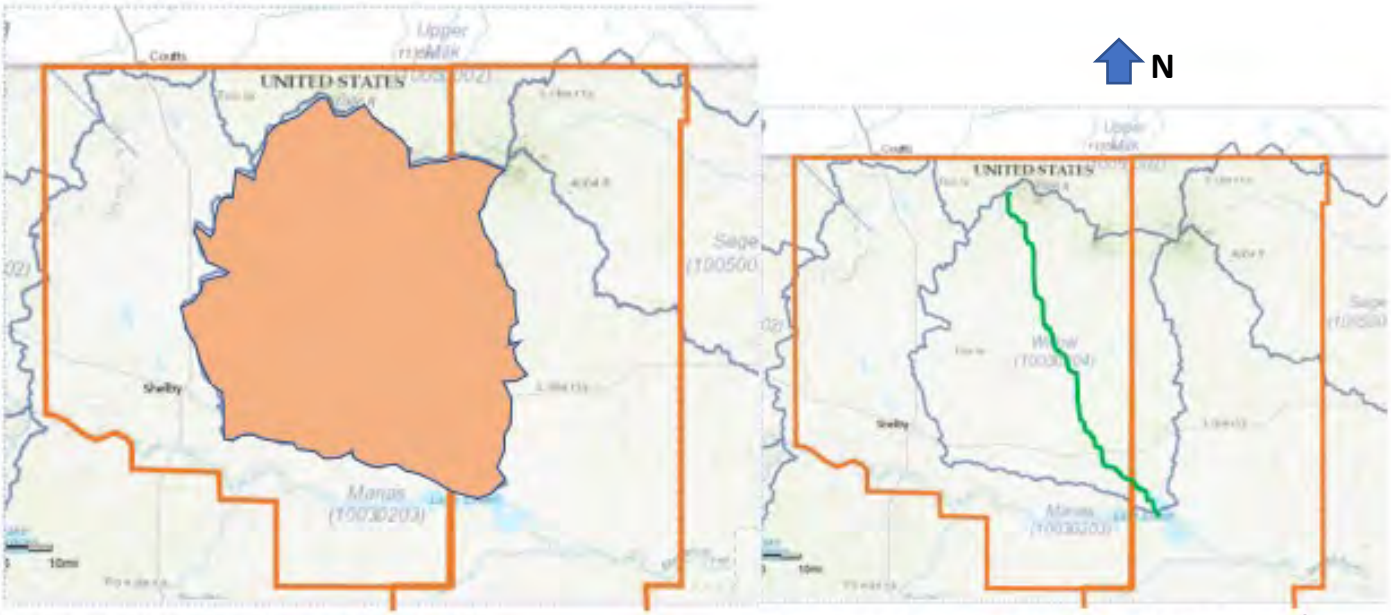
Consensus of the group was that soil health/soil quality is our foundation – without it you have nothing!

Section VI
TARGETED IMPLEMENTATION PLANS (TIPS) AND INVESTMENT PORTFOLIOS/IDEAS – Projected ideas for Initial and Long-Term Planning

(Goals, Specific Objectives, Technology Transfer and Outreach will be developed within the respective TIPs.)

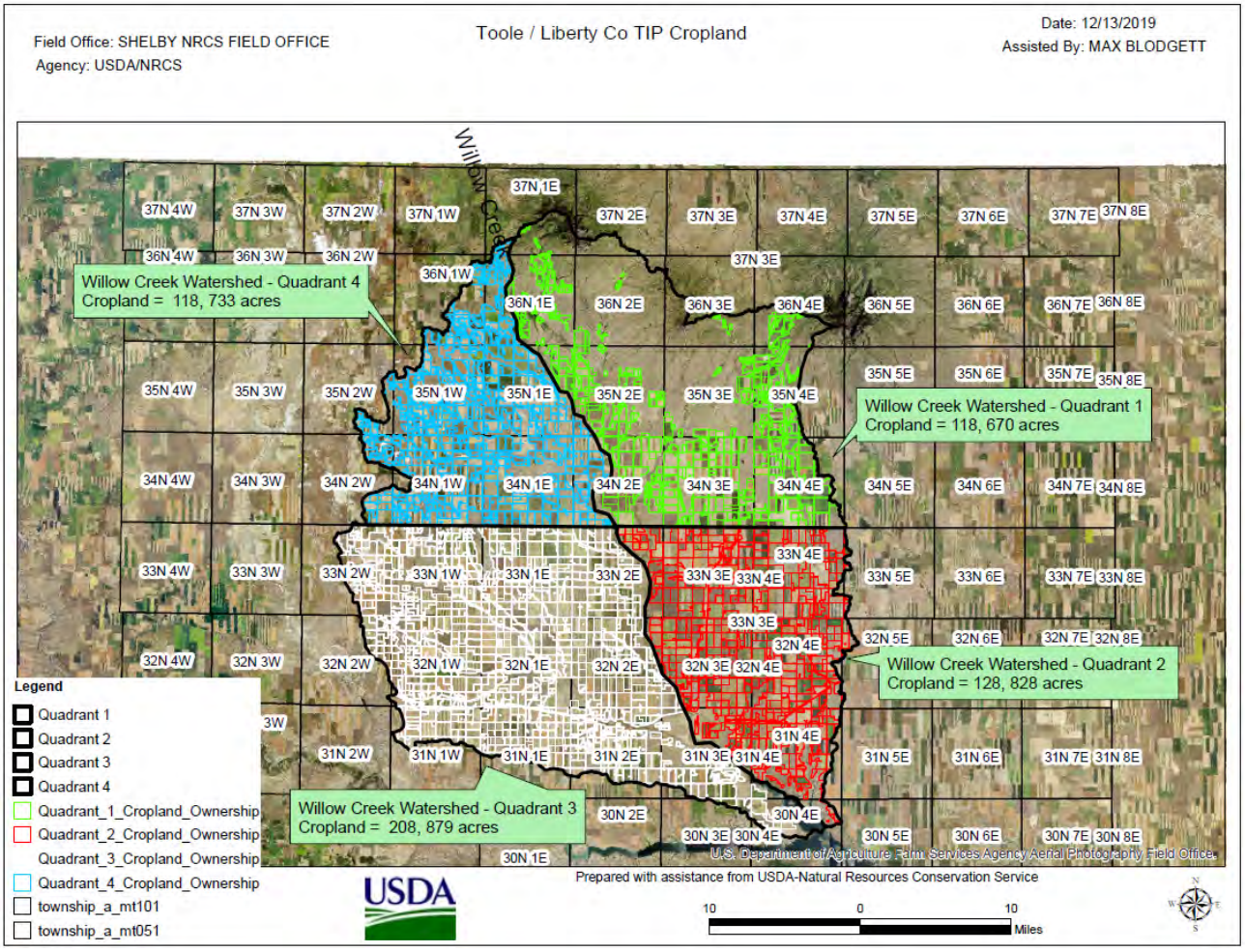
TIP 1 Willow Creek TIP Producers in Toole and Liberty Counties have been advancing in many of the principles of soil health but have barriers to implementing livestock grazing. This becomes a key principle for the unique biological benefit that livestock can provide for the soil as well as the potential to provide income in the form of AUM value while simultaneously kick starting the health of the soils when grazing. *See Toole/Liberty TIP Proposal 2020.* The timeline of focus is 2020 through 2024. This TIP is unique in that it dovetails the partnering efforts of two Conservation Districts with one NRCS Work Unit, all championing for the common goal of healthier, more sustainable soils in their communities. Willow Creek is an appropriate starting point for this quest.

Willow Creek HUC



Peach depicts the Willow Creek HUC

The green line bisects Willow creek HUC



Future TIPS to Strategize for – this is a dynamic list for future considerations, as well as foster partnerships to rally behind.

TIP 2 Salinity in Sage Creek and Associated Soil Health Principles – Partnering with the Sage Creek Watershed Alliance, LCCD, HCCD, Montana Salinity Control Association and the Havre NRCS Work Unit. Potential Years 2021 – 2024.

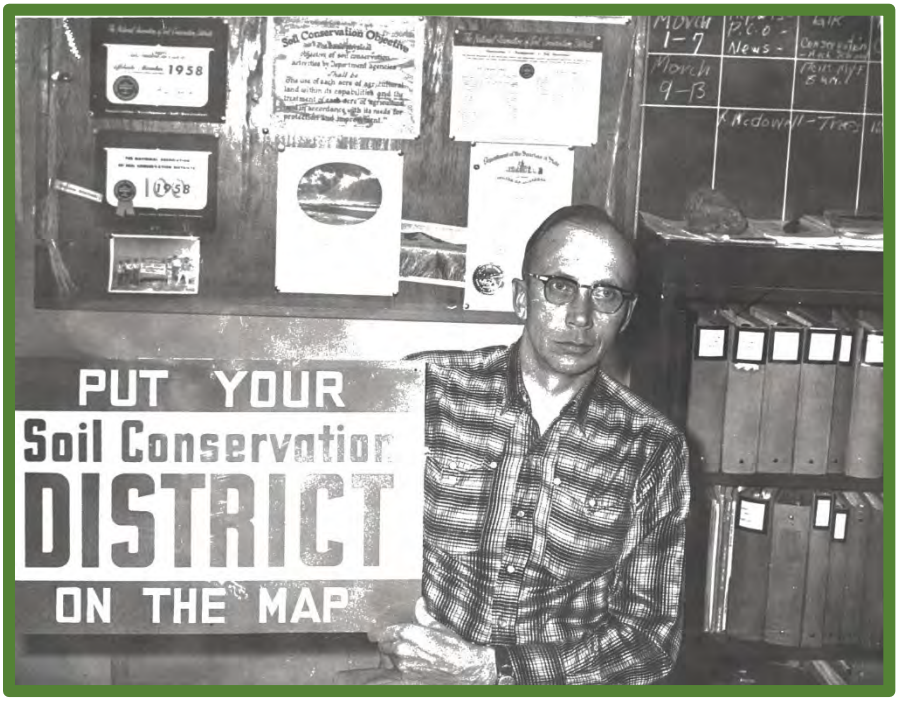
TIP 3 Marias River Resource opportunities as outlined in the May 2008, Marias River (Bear River: Kai'yo Isisakta) Stream Corridor Assessment. Potential partnering with landowners, LCCD, TCCD, Marias River Livestock Association, BOR, BLM, and DNRC - State Lands. - Timeline To Be Determined.

TIP 4 Squeal on the PIGs! Education Campaign. Potential partnering with "Squeal on the Pigs" project sponsor MT Department of Livestock, Marias River Livestock Association, local landowners, Sage Creek Watershed Alliance, LCCD, TCCD, HCCD, DNRC, and groups such as Pheasants Forever. Timeline To Be Determined.

TIP 5 Seeding Permanent cover under power lines -– Northwestern Energy as a potential partner with additional focus along roadways for added erosion control TIP, CSP and CRP. This is an idea from producers. Timeline To Be Determined.

TIP 6 Wildlife developments and tree plantings to provide habitat AWAY from roadside habitat. This is an idea from producers. Timeline to be determined.

TIPs…….. More Work Unit supported TIPS for organic/stripping fields, weed resistance, beginning farmers, windbreaks, sweet grass hills/range, south of Marias/range/pasture, expired CRP…..



Jim Armstrong – Chairman of the Liberty County Conservation District, photo May 14, 1959 - LCCD member 1953 – 1959.

Note the Soil Conservation Objective in Photo:

Soil Conservation Objective
"The basic physical objective of soil conservation activities by Department agencies Shall be
The use of each acre of agricultural land within its capabilities and the treatment of each acre of agricultural land in accordance with its needs for protection and improvement."