

# Farming, Ranching, and Wildlife in North Dakota



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Light-colored wetlands provide good habitat for deer.

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Wildlife responds to the way land is used and treated. If a large part of the landscape is managed in a way to benefit wildlife, the response can be dramatic. And many land management practices that affect wildlife may in turn affect agricultural production and economic return.

Agricultural practices can be divided into three categories: **Good agricultural practices** that benefit both wildlife and the producer; **good wildlife practices** that benefit wildlife but either incur additional costs or limit returns for the producer; and **negative agricultural practices** that benefit neither the producer nor wildlife.

There will be specific instances where the groupings of practices listed here will not hold true. However, they are relevant for most situations in North Dakota.



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# AGRICULTURAL PRACTICES AND EFFECTS

## Good Agricultural Practices

	Effects		
	Wildlife	Agriculture	Economics
Utilize no fall tillage or minimum tillage where possible and delay plowing until spring.	Standing stubble or minimum tillage provides winter food and reduces down-wind drifting of soil and snow into shelterbelts and marshes.	Crop residues are increased above ground. Soil loss from wind and water is reduced. Soil moisture is increased by reduced snow blow-off and increased soil permeability. Increased survival of some plant pathogens and insects is a negative response.	Depending on soil, no tillage or minimum tillage could save on expenses by reducing fuel and labor costs and increase soil moisture. Only finely textured soils in wet bottomlands need to be fall plowed. Pathogen control and possible loss to pathogens could increase costs. Increased soil moisture and reduced soil loss will result in higher total net farm income in the long term.
Leave two or more rows of corn or sunflower stalks adequately spaced across the field.	Standing stalks reduce down-wind drifting of snow into winter habitat, and shattered ears or heads provide winter food.	Standing stalks reduce soil losses from wind. When adequately spaced throughout the field, standing stalks increase snow cover, thus improving moisture conditions. Entry into the field in the spring may be delayed somewhat due to added moisture, but adjacent fields may be benefitted.	A small loss in income may occur from leaving forage the first year. However, increased yields will result from higher soil moisture accumulation.
Use rest-rotation grazing.	Rangeland undergoing a rest period provides nesting cover and brood rearing cover.	Rested grazing land maintains preferred forage species, better root storages for regrowth, and reduced invasion by undesirable plants. Soil erosion from wind and water is decreased.	Improved grazing management will increase returns in the long term. Initial capital input for additional fences and water development may be required.
Avoid overgrazing throughout the year.	Remaining vegetation provides brood rearing and nesting cover during wet years and general protective cover for wildlife.	A good management guideline is to take half and leave half of the forage. Proper grazing decreases hazards of soil erosion from both wind and water action, increases snow retention, discourages weeds, and stabilizes the more productive grassland species.	Light to moderate grazing will provide the higher return in the long term on rangelands. Moderate grazing maximizes net income for the short term.

Develop shelterbelts or fieldbelts and renovate deteriorating belts.

At a stage of development when it is no longer necessary to cultivate to maintain trees, shelterbelts provide good nesting cover. With sufficient rows and correct species composition, shelterbelts can protect gamebirds through the winter, assuming that food is available nearby.

Plant junipers in shelterbelts and fieldbelts.

Junipers increase the value of tree belts to pheasants and other wildlife in winter, particularly during severe blizzards.

Use a greater variety of adapted crops in farm rotations.

A variety of crops is more likely to provide for the basic needs of wildlife than a single crop. For instance, some crops can be used for brood cover, others for food, and others for nesting. In addition, areas with a greater variety of crops tend to provide shelter and living room for wildlife.

Fence dugouts.

Fencing of dugouts can provide a small area of good nesting cover and protection for rearing of birds. Areas can also be used for cover by wildlife in the fall prior to severe weather.

Chisel plow.

More food is available on the soil surface for wildlife.

Field belts reduce evapotranspiration downwind, provide snow retention, and reduce wind erosion. A reduction of soil moisture occurs near tree belts as they mature. Thus, crops planted near the belts will yield less. Use of shrubs on outside rows eliminates this problem.

Junipers reduce wind speed, increase snow accumulation, and lower the wind-chill factor for farmstead and livestock. Junipers provide greater wind protection than other tree species, and add increased permanence to the belt.

A variety of crops reduces seriousness of disease, insect damage, and weed problems. Rotation may improve efficiency of fertilization.

Fencing extends the life of the dugout, reduces maintenance cost, and prevents loafing of cattle in the dugout area.

Chisel plowing maintains a protective covering over the soil surface and reduces erosion.

Tree belts occupy productive land, and reduction in net income will occur temporarily until added soil moisture in adjacent areas provides increased crop yields. Cost is involved in establishing new belts and renovation of old belts. Fences may be needed to provide protection for planted tree belts.

Junipers require more care for successful establishment. Reduced wind-chill in winter will result in reduced maintenance costs for livestock and more efficient gains from the same amount of feed.

Greater stability of farm income results from diversified farming. Lower efficiency in field operations may occur because additional machinery and more labor may be needed.

Fencing prevents some accidental livestock losses. However, fencing and water lift equipment require additional investments and maintenance.

The practice of chisel plowing is less expensive than moldboard plowing.

## Good Agricultural Practices ,cont.

	Effects		
	Wildlife	Agriculture	Economics
Reduce hay mowing speed.	Speeds under 3 mph allows more escape time and decreases kill of nesting birds and young.	No effect.	Increases time used for mowing. Increases safety. Decreases wear on machinery.
Continuous cropping. No fallow, or row crops in place of fallow.	Increases the land area available for wildlife food and cover.	Increases opportunity to maintain residues for erosion control.	Continuous cropping may increase or decrease net income. Row crops in place of fallow may increase net income.

## Good Wildlife Practices

	Effects		
	Wildlife	Agriculture	Economics
Delay first cutting of alfalfa for one week or longer.	Ground nesting birds would be greatly assisted in bringing their clutches to full term with even a one-week delay in first cutting. Normal alfalfa cutting precedes peak pheasant hatching by about 2 weeks.	Cutting at 10% bud stage usually provides optimum forage quality; a delay of one week decreases quality and increases fiber at the expense of protein. Protein composition is reduced 2% by delaying first cutting one week from first flower.	Quality of alfalfa, if the first cutting is delayed one week, would be adequate for beef cows. More grain and supplement would be needed for dairy cows and would increase feed cost.
Develop wildlife cover areas on lands where cropping is uneconomical or erosion is critical.	Vegetative growth in wildlife areas encourages birds to nest in areas other than alfalfa. Survival of all wildlife is improved by encouraging them to use the non-alfalfa types of available cover.	Wildlife areas should be considered where cultivation would cause serious soil losses. Weed problems may develop, however.	No cost will accrue if the area is truly a non-use area. If the area is a source of weed infestation, then weed control will be necessary. A wildlife area may require incentive payment.
Re-establish drained wetlands that have not proven agriculturally productive.	Re-establishment of wetlands would provide wildlife winter cover, food availability, roosting and brood rearing habitat.	Re-establishment of wetlands would relieve the obligation to control weeds, reduce the uncertainty of producing a crop, and save the energy and effort associated with crop failure.	Economic loss would equal cash rent for any productive areas lost by re-establishing the wetland, in addition to the cost of re-establishing. Public values are re-established for flood prevention, sediment detention and nutrient retention.

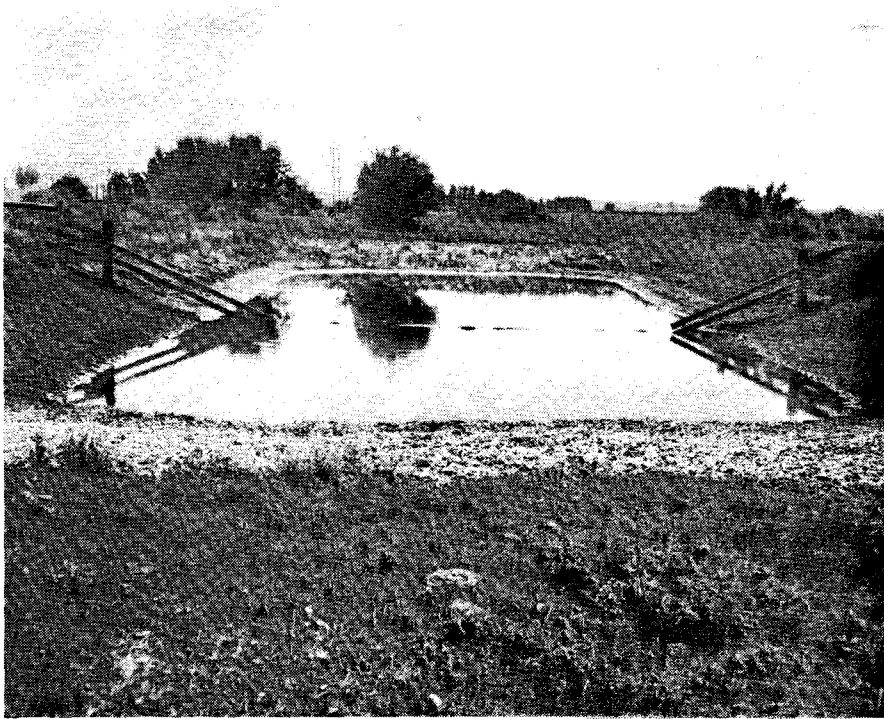
Maintain ( )nds.	Wetlands with emergent plants offer provide excellent winter cover. Wetlands are utilized by many species of wildlife.	Usually such sites are poorly drained and not conducive to agronomic production. Some wetlands are important in recharging ground water sources. However, some adjacent uplands may be removed from production.	Incentive payments or purchase agreements are currently available. Public values for flood prevention, sediment detention and nutrient retention are maintained.
Leave fences and associated strips of grass cover between crop areas.	Undisturbed grass strips provide excellent sites for loafing, nesting and brooding and excellent fall cover for hunting.	Often have value for erosion control.	There will be a loss of production in crops that might be grown in areas covered by fences and field borders.

## Negative Agricultural Practices

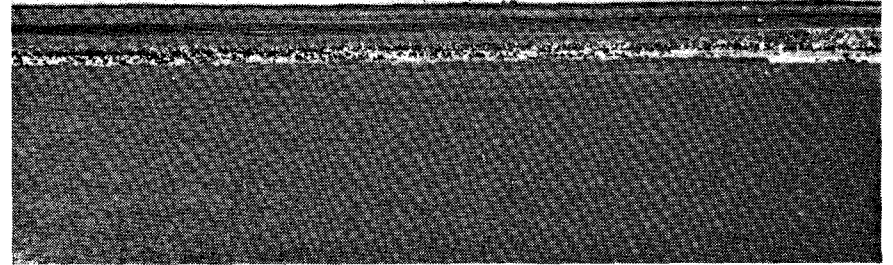
	Effects		
	Wildlife	Agriculture	Economics
Fall plowing in most soil types.	Fall plowing buries food and reduces cover. It also destroys winter cover by increasing drifting of snow and soil into shelterbelts and marshes.	Most moderately to well-drained upland soils can be either fall chisel plowed or sub-surface tilled. When no weed problems or adverse soil conditions exist, fall tillage usually is not needed. Fall plowing is only necessary on certain fine textured soils in most cases.	Cost of plowing with a moldboard plow is greater than comparable methods. If spring tillage is, just as effective, it is better to wait until spring. Fall plowing increases chances of crop depredation on adjacent unharvested crops.
Overgrazing of pastures and range lands.	Over grazed areas will not be used for nesting and rearing of young. It will reduce use by most desirable wildlife species during all periods of the year.	Overgrazing accelerates soil erosion, decreases productivity, and has destructive effects on desirable species of grassland species.	Overgrazing lowers the long range net income potential.
Grazing of shelterbelts.	Grazing destroys the value of shelterbelts for nesting, brood rearing, and general cover.	Grazing decreases the effectiveness of the shelterbelt for wind erosion control, initiates a rapid decline in the viability of the trees, and greatly reduces the lifespan of the belt.	Loss to the farmer occurs because of reduced amounts of soil moisture and increased wind erosion. Shelterbelts may be destroyed and re-establishment is expensive.

## Negative Agricultural Practices, cont.

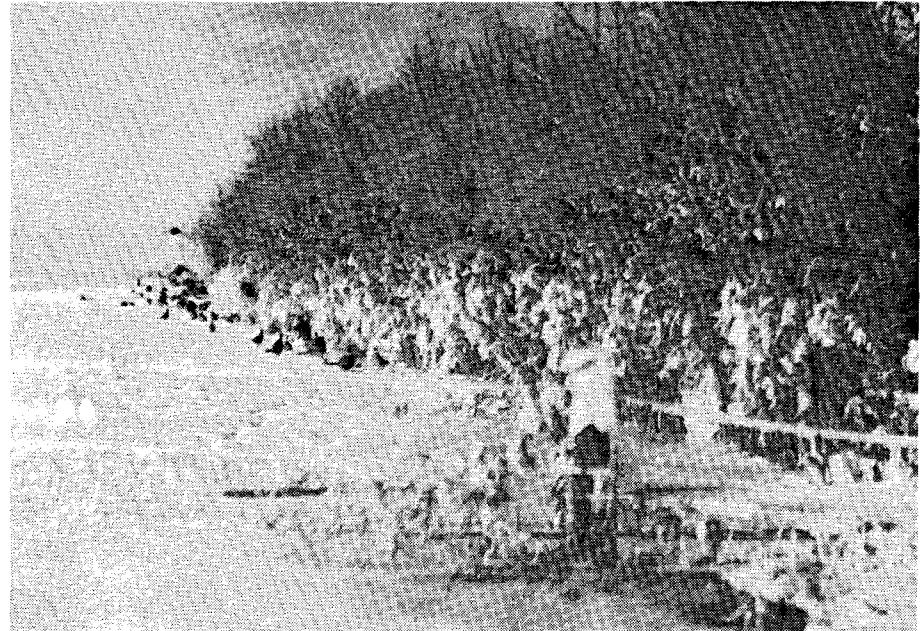
	Effects		
	Wildlife	Agriculture	Economics
Removal of old tree blocks and belts. Planting of single-row belts instead of multi-row belts.	These practices remove areas used by nesting and brooding gamebirds. Single-row tree belts provide limited winter habitat. Planting of narrow strips of perennial tall grass for erosion control, as is occurring in some locations, does not equal the value of multi-row belts for most wildlife species.	Loss of multi-row belts eliminates wind erosion control and may cause a loss of soil and soil moisture. However, additional land is brought into production. Single-row belts reduce wind erosion and can spread snow over adjacent fields better than multi-row belts.	If belt is entirely removed, acceleration of soil losses from wind erosion will likely result in a long-term loss of net income. Erosion control costs could be incurred if control is difficult to attain by tillage methods.
Trampling of dugouts by cattle.	Trampling reduces the use of dugouts by wildlife.	Access to dugouts by cattle could lead to increased silting and potential loss of the dugout. Livestock may be lost in dugouts.	Cost of replacing the dugout and/or lost livestock could be alleviated by restricting livestock access to dugouts.
Overuse of herbicides.	Excess herbicide application will reduce some of the species of plants important for wildlife. Density of herbaceous nesting cover will be reduced. Protective woody cover may be lost if trees in adjacent areas are killed.	Noxious weeds must be controlled. Other weeds, especially annuals, may be left as wildlife cover in non-use areas, and no herbicide applications are needed if spreading does not occur.	Overuse of herbicides is detrimental to animals and crops. Serious pollution of surface and ground water may occur. Extra herbicide usage increases cost but results in no added income.



Protection of livestock water ponds provides wildlife habitat and prolongs the life of the development.

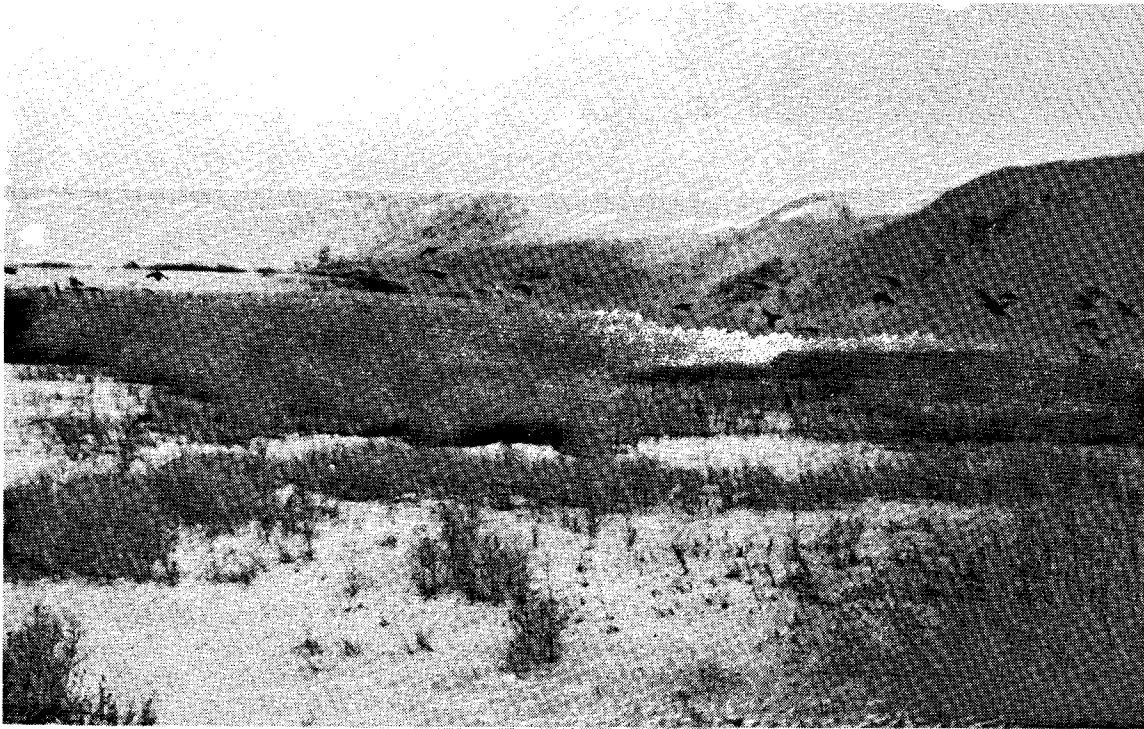


Foregoing fall tillage of small grain stubble conserves moisture, reduces soil erosion and helps to prevent depredation on unharvested fields.

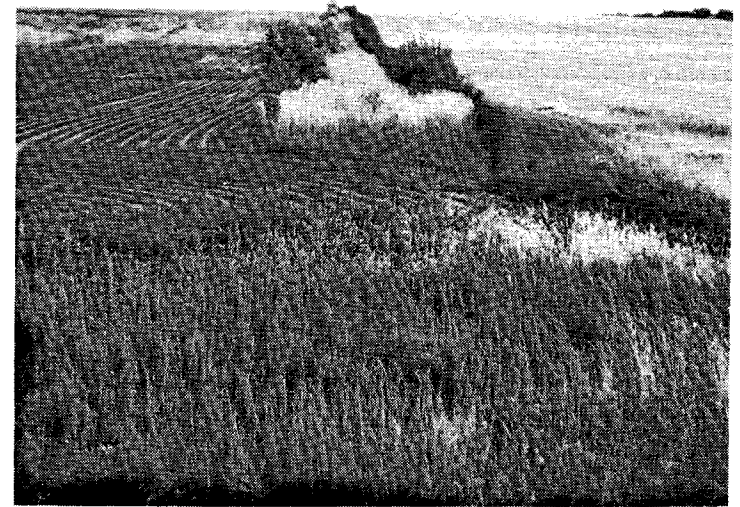


Woody plants afford protection for pheasants, but herbaceous cover and a food supply must be present also.





Good herbaceous cover can do just about everything for pheasants except furnish adequate food supply.



Double row windbreaks provide extra cover for game and non-game wildlife.



Maintaining natural wetlands provides wildlife habitat and maintains other public values such as flood control, sediment detention and nutrient retention.

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