file

United States Department of the Interior

Fish and Wildlife Service
Mark Twain National Wildlife Refuge
Great River Plaza
311 N. 5th Street, Suite 100
Quincy, Illinois 62301

TAKE PRIDE IN AMERICA

9

FISH & WILDLIFE SERVICE RECEIVED AUG 31 1989 REGIONAL OFFICE

August 29, 1989

Memorandum:

To: Regional Refuge Biologist JR 8/31/89

From: Assistant Regional Refuge Biologist, Quincy, IL

Subject: Cropland Management Plan, Mark Twain NWR, Brussels District

I have reviewed the subject cropland management plan. A great deal of thought and effort obviously went into this plan. The plan does an excellent job of identifying waterfowl food requirements and documenting rationale for changing rotation patterns, and converting certain cropland fields to other uses. It is a good plan.

James P. Mattsson

Wilhutchinson
9-14-89

9

800.65

SEP 15 1989

FWS/ARW-WAM2

Memorandum

To: District Manager, Brussels District,
Mark Twain National Wildlife Refuge

Thru: Project Leader, Mark Twain National Wildlife Refuge

From: Wildlife Associate Manager 2

Subject: Cropland Management Plan

Thank you for the revisions in the subject plan. Your plan has been approved and it is a good plan.

It is obvious that a great deal of time and effort went into this plan. The plan does an excellent job of identifying waterfowl food requirements and documenting rationale for changing rotation patterns.

There have been concerns raised about the planting of trees in certain croplands with regard to archaeological sites. This matter is being looked into and we will provide you guidance as soon as we receive it.

Thanks again, for a job well done.

/s/ Matthias A. Kerschbaum

Matthias A. Kerschbaum

WAM2:BILLHUTCHINSON:MH:3702:9/14/89:c:\WP50\FILES\CROPLAND.BRU

File

9

CROPLAND MANAGEMENT PLAN

Mark Twain National Wildlife Refuge
Brussels District
Brussels, Illinois

Submitted by: Patty Meyers Date: 7/19/89
(Refuge Manager)

Concurrence: Date: 7/26/89
(Project Leader, Mark Twain NWR)

Reviewed by: Date: 8/28/89
Division Biologist 2

Reviewed by: Date: 9-19-89
Regional Historic Preservation Officer

Reviewed by: Date: 8/23/89
Wildlife Biologist (2)

Approved by: Matthias A. Kirschbaum Date: 9-14-89
Wildlife Associate Manager (2)

BACKGROUND

The land comprising the refuge was farmed by private landowners long before the refuge was established. Following purchase by the Corps of Engineers in the 1930's farming was continued. In 1948, the first cooperative farming permits were issued to local farmers to farm 148 acres of corn and 10 acres of soybeans. This acreage was increased through the years as farmers were allowed to clear more land. By 1952, ten farmers cropped 186 acres and left 360 bushels of corn in the field for waterfowl. In 1954, farming plans for agricultural lands were made under the General Plan and Cooperative Agreement with the Corps of Engineers. Under this agreement, six agricultural units totaling 314 acres were set up on Batchtown Division, one unit of 62 acres on Gilbert Lake Division and 14 units totaling 300 acres were set up on Calhoun Division. In 1967, an additional 753 acres were purchased and added to Calhoun's agricultural units. The agricultural land at Gilbert Lake Division was increased the following year when an agreement between the Illinois Department of Conservation and the Fish and Wildlife Service turned the management of 86 acres of Pere Marquette State Park land over to the Fish and Wildlife Service.

The tenth condition of the Cooperative Agreement between the Corps of Engineers and the Fish and Wildlife Service states "all lands suitable and adoptable for agricultural purposes shall be used for the production of crops ..." For many years refuge managers assumed this meant that every acre that could be farmed had to be farmed in order to fulfill the agreement. A clarification made in 1984 revealed it to be no longer valid since it was put into the agreement to protect tenants with land use reservations. Since that clarification, 382 acres of agricultural lands have been taken out of crop production. On Calhoun Division, croplands have been reduced from 1,049 to 759 acres. This was accomplished by creating 185 acres of moist soil units, planting 24 acres of pin oaks and 12 acres of permanent cover, and allowing the rest to undergo natural succession. Cropland on Batchtown Division was reduced from 314 acres to 222 acres. Of this land, 22 acres were planted to pin oaks, a 40 acre moist soil unit was created and 30 acres were allowed to revert back to natural vegetation.

REFUGE OBJECTIVES

The major objective of cropland management on the Brussels District of the Mark Twain National Wildlife Refuge is the production of supplemental grain and browse foods to maintain wildlife populations at approved objective levels. Total requirements for refuge waterfowl are 727,000 pounds of grain and 834,750 pounds of browse to meet the waterfowl maintenance objective of 6,527,000 use days.

Corn is planted to provide the supplemental grain for waterfowl. The calculations of refuge crop production are based on an average corn yield of either 75 or 100 bushels per acre; however, it must be noted yields can be quite variable due to weather conditions and occasionally this average is not achieved. It is estimated that the present crop production is providing about 690,600 pounds of grain. This complements the natural production to provide a total of 896,250 pounds of grain.

Winter wheat is planted to provide green browse for geese. It also helps reduce goose depredations on adjacent private lands and should provide some ground cover to decrease soil erosion following soybean harvest.

A secondary objective of cropland management is the prevention of the invasion of undesirable brush or trees. The bottomland area being farmed would be quickly taken over by willows and maples if farming activities were ceased and no other management practice implemented. These species are of little wildlife value and should be discouraged. Cropland activities also provide habitat diversity and edge effect which contributes to wildlife diversity.

MANAGEMENT

Calhoun Division

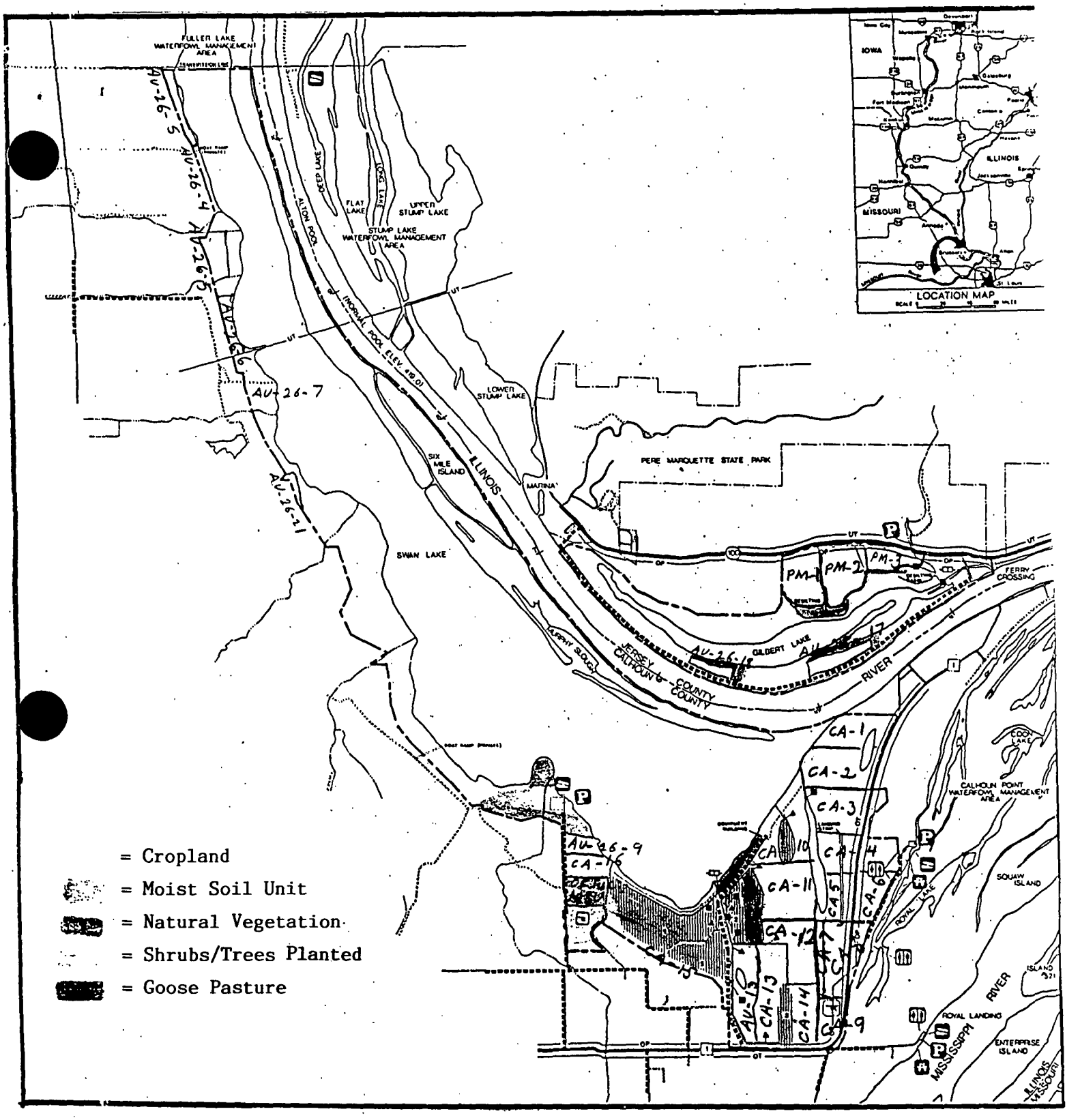
Current Management:

The cropland program on Calhoun Division is conducted under cooperative agreement with five local farmers. Cooperative agreements have been drawn up annually prior to the planting season. Long term agreements were not considered feasible due to numerous floods.

Two share crop farming arrangements are used to farm the 759 acres of land managed in this Division. The first provides for the equivalent of a 2/3:1/3 share basis with the cooperator receiving the larger share. The refuge share is left in the field as standing corn and winter wheat. Approximately 49 acres of farmed Corps of Engineers land and 647 acres of Fish and Wildlife Service Fee Title land fall into this category. The second arrangement involves crops that are excess to wildlife needs, primarily soybeans. All of these crops are harvested with the refuge receiving 1/4 of the harvested crops as its share. The cooperator gets a 3/4 share for furnishing the seed, planting, cultivating, harvesting, and hauling the refuge share to the elevator. The receipts raised from these crops are deposited into the 5092 account where the funds can be used to accomplish work on Corps of Engineers land. The 3/4:1/4 split occurs on 63 acres of Corps of Engineers land managed by the Fish and Wildlife Service.

The predominate soil on Calhoun Division is Tice silt loam with the remaining soils classified as Beaucoup silty clay loam or Wakeland silt loam. These soils are typically poorly drained floodplain soils subject to frequent floods. Flooding usually occurs in the spring and fall and strongly influences the farming program. There is little erosion since all fields are nearly level and twenty foot buffer strips have been established around all drainage ditches. Soil tests were completed on all fields during the summer of 1989. The tests included soil pH, organic matter, phosphorus, potassium, calcium, and nitrogen. The test results have not been received to date but will be used to determine field needs. Soil tests will be conducted every three years.

Row crops planted on this Division include corn, soybeans, and wheat. Three year crop rotations have been attempted but schedules were often changed. Corn is planted to supplement natural food for waterfowl. It is shred after the fall migration and most of it used in the winter during periods of severe weather or during the spring migration. Wheat is planted to provide green browse for geese. It also helps to prevent depredation of crops on adjacent private lands and provides a cover crop to protect the soil. Since allowing the wheat to mature would not contribute to refuge objectives, it is disced under as green manure in the spring before it heads out. Soybeans are planted as a cash crop for the cooperative farmer. Since soybeans are of low value to wildlife, the refuge shares are in equivalent amounts of corn.



CALHOUN / GILBERT LAKE DIVISIONS

TWAIN NATIONAL WILDLIFE REFUGE

AND WILDLIFE SERVICE
MENT OF THE INTERIOR

SCALE 1:12000

Crop yields are extremely variable, ranging from 45 to 135 bushels per acre for corn and 15 to 40 bushels per acre for soybeans. Flooding and soil moisture content play a significant role in yield outcome and ability to harvest crops. Crop yields are also influenced by the high variability of fertilizer applied by individual farmers.

In addition to the row crops approximately ten acres are planted to buckwheat, milo, sunflowers, or millet as wildlife food plots. The plots prevent the growth of undesirable vegetation and provide diversity of available food. These crops are provided primarily for the benefit of waterfowl but resident wildlife utilize them as well.

The moist soil units require manipulation to prevent the encroachment of woody vegetation. The cooperative farmers occasionally manipulate the units on a staggered schedule. Mechanical manipulation practices include mowing, discing and/or planting. Prevailing rates provided by the ASCS are used to calculate actual percentage for share divisions with the farmer taking his share from the cropland area so that the entire moist soil unit is available for wildlife.

Proposed Management:

1. Crop Rotations

a) General

A two year crop rotation is proposed in which corn is planted the first year, followed the next year by soybeans with wheat aerially seeded in late summer. With the corn-soybean/wheat rotation, corn is planted every other year. This rotation plan would eliminate the large acreage of bare ground presently seen after the soybean harvest. The bare ground increases erosion potential, decreases water quality, and does not maintain sound soil conservation practices. In conjunction with the two year rotation, two year cooperative farming agreements will be drawn up in an attempt to decrease the administrative workload.

The larger farm units, those greater than 25 acres in size, will be divided in half with one half planted to corn and the other to soybeans, eliminating large monotypic stands. As a result, corn, wheat, and soybean waste will be available each year and diversity increased.

b) Goose Pasture Field

The productivity of the Goose Pasture field has declined considerably in recent years, although it continues to be heavily used by geese for browse. Records indicate the unit has not been planted to a legume for at least six years. By planting the field to a ladino/alsike/red clover mixture, the soil will benefit and green browse will be available to geese. The clover will be allowed to grow for at least 18 months and mowed at least twice each year. The first mowing is suggested for early July after nesting to control weeds and the second mowing should be done in early fall, prior to the arrival of waterfowl to provide a more palatable browse. In the second year the clover will be disced in August and planted to wheat. A two year rotation of clover-wheat could be implemented once soil conditions have improved.

2. Cropland Conversions

The agricultural lands managed by the refuge vary greatly in productivity, primarily because of flooding and field drainage. The higher fields, found only on part of Calhoun Division, consistently produce better crop yields than the lower, poorly drained fields. Fields with frequent flooding and poor drainage have been evaluated on the basis of productivity, size and use by waterfowl. As a result of the evaluation, some changes in management are recommended.

a) Retire marginal acreage and convert to bottomland timber or native grasses.

Fields, AU-26-6 and 7

These small, irregularly shaped fields are low in organic matter and consistently low in productivity. The soil is poorly drained and the fields are subject to spring and fall flooding. According to Soil Conservation Service ratings, this soil is rated poor for grain production and has a much greater potential as woodland habitat. Since little waterfowl use has been recorded for many years, it is recommended these fields be retired from crop production and either planted to pin oaks or allowed revert to bottomland timber.

Fields AU-26-3, 4 and 5

These three fields are poorly drained and frequently flooded. Crop production has been consistently low. Waterfowl use of the waste corn or soybeans has been minimal to non-existent. Converting these fields to a mixture of native grasses would provide better wildlife habitat and help meet refuge objectives for waterfowl. According to Soil Conservation Service ratings, this soil would provide good grass habitat.

Field AU-26-21

This three acre, irregularly shaped field is poorly drained and frequently flooded. No waterfowl use has been recorded for several years, perhaps because of its size and location. It is recommended this field be retired from crop production and allowed to lie idle.

Gilbert Lake Division

Current Management:

One cooperative farmer conducts all the farming in this Division. A cooperative agreement is drawn up annually prior to the planting season. Two share crop farming arrangements are used. As on the other two Divisions, there is a 2/3:1/3 share and a 3/4:1/4 share. Cropland on Gilbert Lake Division belongs to both the Illinois Department of Conservation (80 acres) and to the Corps of Engineers (33 acres). Crops from the Illinois Department of Conservation are divided on the 2/3:1/3 split while crops on Corps of Engineers land can be divided using either share method.

The primary soil type on Gilbert Lake Division is Worthen silt loam. This soil is typically moderate to well-drained with a moderate erosion hazard. The Worthen silt loam is well-suited to cropping but care must be taken to avoid serious erosion problems. Other soils present include Haymond silt loam, Tice

silty clay loam, and Beaucoup silty clay loam. Results from soil tests taken this year have not yet been received. Analyses will be used to evaluate the management practices on each field. All soils will be tested every three years.

As on the other two Divisions, the major problem with farming is the predominance of flooding. Of the 95 acres classified as cropland, about 73 acres are subject to flooding during all seasons of the year. Typically, planting dates must be postponed or crop rotations changed because of wet conditions. Presently five acres of corn are left standing in the field for waterfowl food and 18 acres of wheat are planted to provide browse for geese. An additional 14 acres of non-cropland are planted to wheat to control a serious Johnson grass problem. By planting wheat the Johnson grass can be sprayed with Roundup and mowed and/or disced in the summer by the cooperative farmer. Once the Johnson grass is controlled, the field will be seeded to clover so that yearly cultivation can be discontinued. The remaining cropland (12 acres) has been seeded to alfalfa and clover to provide a permanent ground cover and help protect an archaeological site. Occasionally this field must be cultivated to control undesirable weeds and reseeded to alfalfa and clover.

Crop yields are variable, ranging from 75 to 150 bushels per acre for corn to 35 to 50 bushels per acre for soybeans. Most of the farm land is of higher quality than that found on Calhoun Division and as a result yields are consistently higher; however, the same problems of flooding and poor drainage also occur.

Proposed Management:

1. Crop Rotations

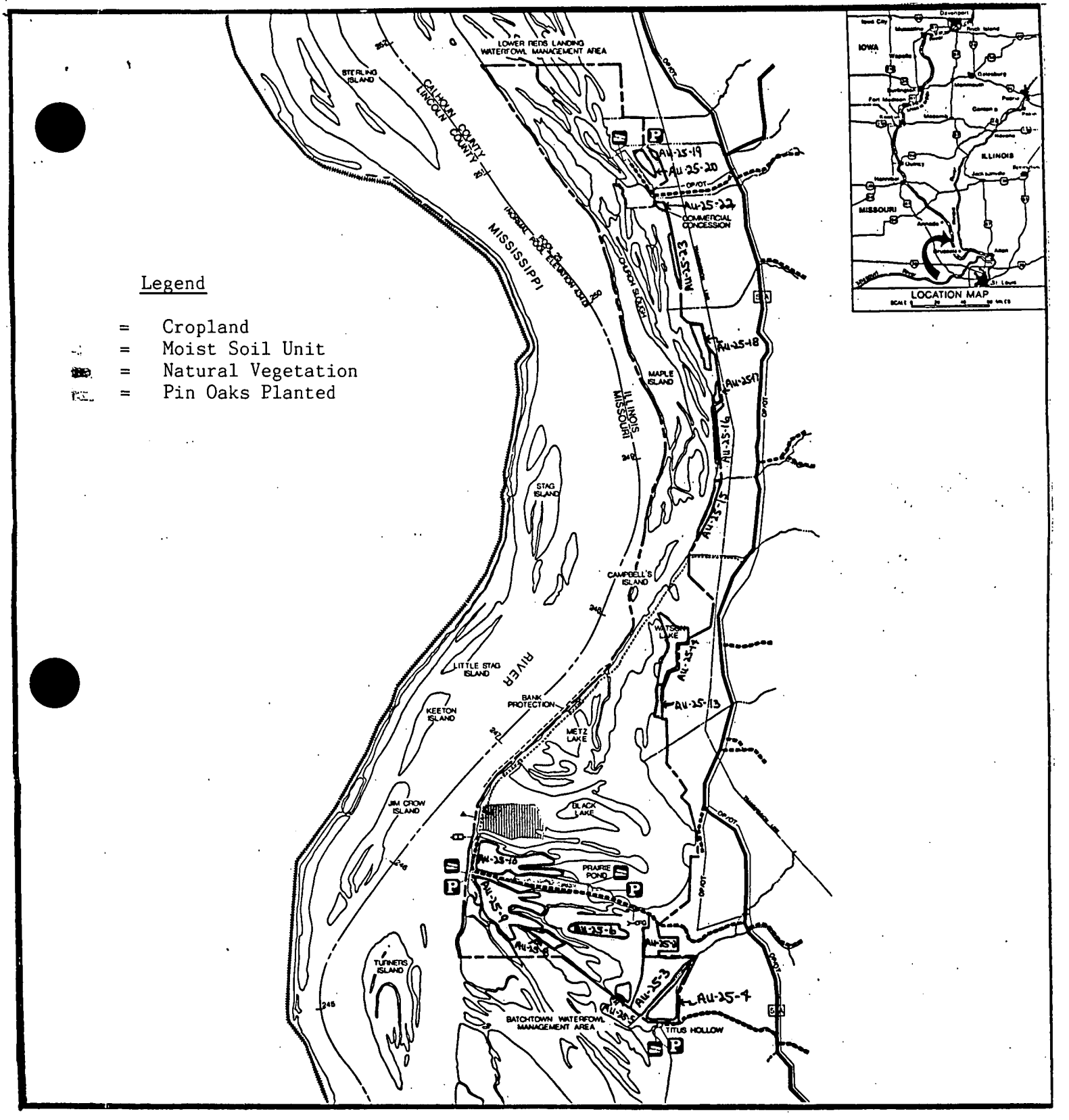
A two year rotation is proposed in which corn is planted the first year, followed the next year by soybeans with wheat aerially seeded in early September. About 69 acres of cropland will be planted to row crops using this rotation and will include 35 acres of corn. Of this, 12 acres of corn will be left standing for waterfowl and 35 acres of wheat will be available for browse.

Presently grain requirements are not sufficient to meet the total food needs of waterfowl using the Gilbert Lake area. Estimated requirements are 125,000 pounds of which 31,000 pounds are provided by natural foods. If 12 acres of corn are left standing, approximately 80,640 pounds of corn would be available to waterfowl, leaving a food deficit of 13,360 pounds. To make up for this shortage waterfowl will have to make feeding flights to Calhoun Division or off refuge or changes will have to be implemented in the water management of Gilbert Lake.

2. Cropland Conversions

Fields AU-26-17 and 18

The lower two-thirds of these fields have been planted to soybeans every year for the past eight years. Since all beans are harvested, the fields provide little benefit to wildlife. Both fields typically flood several times each year, contributing to the decreasing crop yields. The management of this land needs to be evaluated when the soil analysis and the Soil Conservation Service Conservation Plan are received. The fields may be better suited as woodland or grass habitat or at the very least planted to something other than a row crop.



BATCHTOWN DIVISION

MARK TWAIN NATIONAL WILDLIFE REFUGE

U.S. FISH AND WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

Batchtown Division

Current Management:

The cropland program on Batchtown Division is conducted under cooperative agreement with eight cooperative farmers. Cooperative agreements are drawn up annually prior to the planting season.

Two crop sharing arrangements are used to farm 222 acres of land managed on this Division. As on the other two Divisions there is a 2/3:1/3 split and a 3/4:1/4 split. In the first arrangement, the refuge share is left in the field as standing corn or winter wheat. About 184 acres fall into this category. The second arrangement involves crops that are excess to wildlife needs and are therefore harvested. The 3/4:1/4 split occurs on seven fields totalling 38 acres. The receipts raised from these crops are deposited into the 5092 account where it can be used to accomplish work on Corps of Engineers land. All cropland on Batchtown Division is Corps of Engineers land.

The soils on Batchtown Division are comprised of Wakeland silt loam, Haymond silt, and Tice silt clay loam, in fairly equal quantities. There is also a small occurrence of Beaucoup silty clay loam. These soils are typically poorly drained floodplain soils subject to frequent floods. All cropland with the exception of a four acre field is subject to serious flooding throughout the year but especially during the spring and fall. Erosion problems are low since all fields are nearly level and twenty foot buffer strips of permanent cover have been established around all drainage ditches and other water areas. Soil tests were completed on all fields but results have not been received. Results will be used to further evaluate farming practices on this Division and soils will be re-tested every three years.

The major problem with farming this area is the predominance of flooding. The Division lies along the Mississippi River just south of Lock and Dam 24. As a result the area is heavily influenced by Corps of Engineers activities. Typically, planting dates must be postponed and crop rotations changed because of high water.

Corn, soybeans, and wheat are the primary crops grown on this Division with a corn-soybean/wheat rotation followed whenever possible. If wet conditions prohibit following the scheduled rotation, the cooperative agreement is altered for that year only and the rotation resumed the next year. As on the other two Divisions, the refuge share of corn is left standing. All soybeans are harvested as a cash crop for the farmer. It should be noted a possibility exists that the soybeans cannot be harvested every year because of wet conditions. Historically, no problems have been recorded with respect to crop impaction caused by soybeans in this area.

Each year a minimum of 22 acres of winter wheat is planted for goose browse and no less than 30 acres of corn left for waterfowl. Also, approximately 5 acres of buckwheat, sorghum, sunflowers, or millet are planted in a wildlife food plot to increase diversity and prevent the encroachment of undesirable vegetation. Although planted primarily for waterfowl, resident wildlife also benefits.

Crop yields are extremely variable, ranging from 30 to 130 bushels per acre for corn and 15 to 46 bushels per acre for soybeans. This variability is primarily

due to heavy flooding and soil moisture content. As on the other two Divisions, fertilizer application varies between individual farmers adding additional variability in crop yield.

In addition to the cropland, the moist soil unit requires mechanical manipulation to prevent the encroachment of undesirable vegetation, primarily tall ironweed and willows. The unit is mowed or disced by cooperative agreement, force account, or by volunteer assistance. If necessary, the unit is planted to Japanese millet.

Proposed management:

1. Crop Rotations

a) General

A two year crop rotation is proposed in which corn is planted the first year, followed the next year by soybeans with wheat aerially seeded in late summer. With the corn-soybean/wheat rotation, corn is planted every other year. This rotation plan would eliminate the bare ground presently seen following soybean harvest and would provide increased food and habitat diversity. Two year cooperative agreements will be written to decrease the administrative workload.

It is also recommended the larger farm units, AU-25-2, 3, 9, and 10, be divided in half with one half planted to corn and the other to soybeans, eliminating large monotypic stands. As a result, corn, wheat, and soybean waste will be available each year and diversity increased.

2. Cropland Conversion

The cropland on this Division varies greatly in productivity, primarily because of flooding and field drainage. The poorer drained fields typically produce lower crop yields. Evaluations of these fields have shown most of them receive minimal waterfowl use and it is recommended they be phased out of the farming program.

a) Retire marginal acreage and convert to bottomland timber or native grasses.

Fields AU-25-5, 15, 17, 19, 20, 22, and 23

These seven fields total only 28 acres and if retired would decrease the number of cooperative farmers by four persons. The fields are extremely small, averaging three acres in size, irregularly shaped, and receive little to no use by waterfowl. The main benefit provided by farming is preventing the invasion of undesirable vegetation. These areas could provide valuable habitat if planted to native grasses or pin oaks.

PROGRAM DIRECTION

1. Support refuge waterfowl maintenance objectives by complementing natural food production program.

2. Implementing and maintaining a crop rotation program.

3. Maintain sound soil conservation practices.

4. Maintain the restrictions on insecticides and limit the use of herbicides to specific problems.

5. Continue the restriction on fall plowing and reduce tillage as much as possible.

6. Retire small acreage that often floods. These areas will be planted to pin oak, native grasses, or allowed to go back to natural vegetation.

7. A written annual evaluation of each crop field will assist in managing the fields and provide continuity to the program as staff changes occur. The form, shown in Figure 1, will be implemented immediately.

Waterfowl Food Requirements

Calhoun Division

Waterfowl maintenance objectives = 2,007,000 Use Days - Ducks
797,000 Use Days - Geese

It can be assumed waterfowl do not obtain all food requirements on the refuge:

Assume 40% of ducks feed on refuge = 803,000 duck feeding days

Assume 75% of geese feed on refuge = 598,000 goose feeding days

Assumed food consumption:

Ducks = 0.2 lb./day - grain
Geese = 0.5 lb./day - grain
Geese = 1.0 lb./day - browse

Total Requirements for Refuge Waterfowl Populations:

Ducks @ 0.2 lb./day x 803,000 duck feeding days = 161,000 lbs. - grain

Geese @ 0.5 lb./day x 598,000 goose feeding days = 194,000 lbs. - grain*

Geese @ 1.0 lb./day x 598,000 goose feeding days = 598,000 lbs. - browse

*Assume demand for grain by geese is offset by 35% with available browse.

Total = 355,000 lbs. grain
598,000 lbs. browse

Moist Soil Production

Production is an estimate based on previous production information derived from moist soil units of a similar plant structure and waterfowl usage of the area.

Moist Soil Unit 1 - 53 acres x 175 lb./acre = 9,275 lbs.

Moist Soil Unit 2 - 12 acres x 175 lb./acre = 2,100 lbs.

Moist Soil Unit 3 - 35 acres x 175 lb./acre = 6,125 lbs.

Moist Soil Unit 4 - 14 acres x 175 lb./acre = 2,450 lbs.

Moist Soil Unit 5 - 35 acres x 175 lb./acre = 6,125 lbs.

Office 21 acres x 175 lb./acre - 3,675 lbs.

Total Moist Soil Unit Food Production = 29,750 lbs.

Wetlands

Includes Schoolhouse Lake (30 acres), Yorkinut Lake (35 acres), and Swan Lake (2,500 acres). Since there is no data available on these areas it is estimated that Schoolhouse Lake, Yorkinut Lake and 20% of Swan Lake (500 acres) have a production capability equal to the production of a moist soil unit.

Total wetland production 565 acres x 175 lb./acre = 98,875 lbs.

Natural food production in these programs therefore decreases total food requirements by about 126,000 lbs.

Grain Requirements

355,000 lbs.	grain
-126,000 lbs.	natural food
299,000 lbs.	required from cropland

Goose Browse

Based on past use patterns the proposed 370 acres of browse is more than adequate to support current goose populations. Alhough wheat aerially seeded into soybeans does not produce as much as drilled wheat, enough browse will be produced so that several crop fields can be taken out of production without detrimental effect.

Grain

Refuge's cropping share in corn left in field would be approximately 120 acres x 4,200 lb. = 504,000 lbs*.

*Based on an average yield of 75 bu./acre.

Wildlife Food Plot

Program would consist of planting approximately 10 acres of buckwheat, milo, sunflowers, millet, etc.

10 acres x 1,250 lb./acre = 12,500 lbs.

Due to heavy depredation by blackbirds and other animals , only a portion of this amount would be available to waterfowl.

504,000 lbs.	standing grain
5,000 lbs.	wildlife food plot
509,000 lbs.	Total
299,000 lbs.	grain required
210,000 lbs.	surplus to waterfowl needs.

Gilbert Lake Division

Waterfowl maintenance objectives = 469,000 Use Days - Ducks
267,000 Use Days - Geese

It can be assumed waterfowl do not obtain all food requirements on the refuge:

Assume 40% of ducks feed on refuge = 188,000 duck feeding days

Assume 75% of geese feed on refuge = 200,000 goose feeding days

Assumed food consumption:

Ducks = 0.2 lb./day - grain
Geese = 0.5 lb./day - grain
Geese = 1.0 lb./day - browse

Total Requirements for Refuge Waterfowl Populations:

Ducks @ 0.2 lb./day x 188,000 duck feeding days = 38,000 lbs. - grain

Geese @ 0.5 lb./day x 267,000 goose feeding days = 87,000 lbs. - grain*

Geese @ 1.0 lb./day x 267,000 goose feeding days = 267,000 lbs. - browse

*Assume demand for grain by geese is offset by 35% with available browse.

Total = 125,000 lbs. grain
200,000 lbs. browse

Moist Soil Production

There are no moist soil units on Gilbert Lake Division.

Wetlands

Gilbert Lake Division has approximately 144 acres of wetlands which has a production capability equal to the production of moist soil.

Wetland production = 144 acres x 175 lb./acre = 31,000 lbs.

Natural food production in this program decreases total food requirements by 31,000 lbs.

Grain Requirements

125,000 lbs. grain
- 31,000 lbs. natural food
94,000 lbs. required from croplands

Goose Browse

Based on past use patterns the 40 acres of clover and 39 acres of winter wheat is adequate to support the current goose population. Many of these geese fly back and forth between Calhoun and Gilbert Lake Divisions. If depredation by geese starts on surrounding private areas more wheat will have to be added.

Grain

Refuge's share of crop left in field will be approximately 5 acres of corn x 6,720 lbs. = 33,600 lbs. *

*Based on an average yield of 120 bu./acre.

The cropland program based on 5 acres will furnish:

33,600 lbs. standing corn
94,000 lbs. grain required
60,400 lbs. short of waterfowl needs

If 12 acres of corn are left standing the cropland will furnish:

80,640 lbs. standing corn
94,000 lbs. grain required
13,360 lbs. short of waterfowl needs

To make up for this shortage waterfowl will have to feed elsewhere.

Batchtown Division

Waterfowl maintenance objectives = 2,938,000 Use Days - Ducks
49,000 Use Days - Geese

It can be assumed waterfowl do not obtain all food requirements on the refuge:

Assume 40% of the ducks feed on refuge = 1,175,000 duck feeding days

Assume 75% of the geese feed on refuge = 36,750 goose feeding days

Assumed food consumption:

Duck = 0.2 lb./day - grain
Geese = 0.5 lb./day - grain
Geese = 1.0 lb./day - browse

Total Requirements for Refuge Waterfowl Populations:

Ducks @ 0.2 lb./day x 1,175,000 duck feeding days = 235,000 lbs. - grain

Geese @ 0.5 lb./day x 36,750 goose feeding days = 12,000 lbs. - grain*

Geese @ 1.0 lb./day x 36,750 goose feeding days = 36,750 lbs. - browse

*Assume demand for grain by geese is offset by 35% with available browse.

Total = 247,000 lbs. grain
36,750 lbs. browse

Moist Soil Production

Production is an estimate based on previous production information derived from moist soil units of a similar plant structure and waterfowl usage of the area.

Moist Soil Unit 1 - 50 acres x 175 lb./acre = 8,750 lbs.

Total Moist Soil Unit Production = 8,750 lbs.

Wetlands include Prairie Pond, a 547 acre area which will be managed for moist soil plants. The central portion of the pond remains inundated and does not contribute to the moist soil plant production. Production on about 300 acres generally averages out acre for acre to be equal to the production of the moist soil unit.

Total Wetland Production 300 acre x 175 lb./acre = 52,500 lbs.

Natural food production decreases total food requirements by 61,250 lbs.

Grain Requirements

247,000 lbs. grain
61,250 lbs. natural food
185,750 lbs. required from cropland

Goose Browse

Based on past use patterns, the planned 50 acres of wheat planted for browse is adequate to support the current goose population.

Grain

Refuge's share of crops left in the field would equal 35 acres x 4,200 lb. = 147,000 lbs.*

*Based on an average yield of 75 bu./acre.

Wildlife Food Plot

The program would consist of approximately five acres of buckwheat, milo, sunflowers, millet, etc.

5 acres x 1,250 lb./acre = 6,000 lbs.

The cropland program is furnishing:

147,000 lbs.	standing crops
6,000 lbs.	wildlife crops
153,000 lbs.	Total crops
247,000 lbs.	Total waterfowl needs
214,250 lbs.	Total grain and natural food production
32,750 lbs.	Short of waterfowl needs

Figure 1. Croplands Evaluation Form

Year _____

Farm Field # _____

Cooperator _____

Crop	Date Planted	Acreage	Date Harvested	Yield

Fertilizer applied: _____

Pesticide applied: _____

Sketch

Wildlife Use

Species

_____ _____

_____ _____

_____ _____

Peak #'s and dates

_____

_____

_____

_____

Remarks: Problems, highlights, suggestions for upcoming year.

_____

_____

_____

Use days recorded

_____

_____

_____

Date

Farmers Name
Address

Dear ,

Enclosed you will find your cooperative farming agreement for 1989. Please sign the agreement and return it to me by March 1. I will sign it and return a copy to you. Keep the map and other attached materials.

You will notice I have attached two "Herbicide and Fertilizer Use" forms for your convenience. Each time you apply a fertilizer or herbicide to one of your refuge fields make a note on the enclosed form as to which field, fertilizer or herbicide used, application rate and date of application. When I need to make our required report concerning agricultural chemicals used on the refuge the information will be readily available. Hopefully, this form will make things easier for all of us. These forms must be returned to the office no later than August 15th.

I have also attached a "Crop Yield" form. As you harvest the crops please record the yields of corn and soybeans for each field. This form must be completed and returned to the office by November 1st.

If you have any questions please give me a call or drop in. Best of luck in 1990.

Sincerely,

Patti A. Meyers
Refuge Manager

PM/dk

DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service

COOPERATIVE FARMING AGREEMENT

Cooperator's name	Address
Edward Hillen Phone: (618) 396-2550	Meppen, IL 62064
Period of use From: April 1, 19 89 To: March 31, 19 90	**Refuge Name and State where located** Mark Twain NWR, Brussels District Calhoun Division, Brussels, IL

The U.S. Fish and Wildlife Service, for and in consideration of the mutual benefits arising hereunder, grants to the Cooperator named above, privileges of using lands of the National Wildlife Refuge System indicated above, for the cultivation, production, and/or harvesting of agricultural crops, on a share basis as specified below:

Farm Unit	Field	Crop or Crop Group	Acres	Cooperator's Share (% or acres)	Government's Share (% or acres) Harvested	Government's Share (% or acres) Unharvested
AU-26	3	Corn	12.3	8.2 acres (2/3)		4.1 acres (1/3)
AU-26	4	Soybeans (followed by wheat)	16.2	12.2 acres (3/4)	4 acres (1/4)	
AU-26	5	Corn	15.0	7.5 acres		7.5 acres
		Soybeans (followed by wheat)	15.0	15.0 acres		

1. The Cooperator agrees that agricultural crops of the type and acreages specified above must be planted, cultivated, harvested during the first year of operation. If this agreement is for more than one year, the type of crop, acreage, and distribution may be altered or modified annually, following the first year of operation, by mutual consent of both parties. Changes in the agreement must be made prior to planting season by an addendum, which is attached to and becomes part of the agreement.

2. These privileges are granted by the U.S. Fish and Wildlife Service, and accepted by the undersigned, subject to the terms, convenants, obligations, and reservations contained therein.

3. Special Conditions: (If none, so state)

a. See attached list of special condition which are made a part hereof and crop field maps.

- - - -

SPECIAL CONDITIONS

1) No insecticides will be used on refuge lands. Only approved herbicides may be used (see attached list). Cooperator must read and strictly comply with all label instructions. All applications must be recorded for each field and the information provided to the Assistant Manager by August 15th.

2) Approximately fifty percent of refuge acreage will be planted to corn and fifty percent to soybeans (followed by wheat) as shown on the attached map. Crop shares will be divided as follows:

a) Whenever half of the field is in corn and half is in soybeans, the cooperator's share of the crop will be all soybeans and half of the corn yield. The refuge's share will be half of the corn yield (left standing in an area determined by the Refuge Manager), plus cooperators will be responsible for aerially seeding to winter wheat. Wheat seeding rate will be three bushels per acre and will be done by September 15.

b) Whenever an entire field is planted to a single crop and the Government's share is harvested, one-fourth share goes to the Government and three-fourths to the cooperator. The cooperator will harvest and haul to a local elevator and provide weight slips to the Refuge Manager. The cooperator is responsible for aerially seeding to winter wheat any soybean fields.

c) Whenever an entire field is planted to a single crop and the Government's share is not harvested, the Government's share will be one-third and the cooperator's two-thirds.

3) No fall tillage of fields or burning will be conducted.

4) Cooperator is responsible for shredding the Government's unharvested share of the crop when instructed by the Refuge Manager.

5) Cooperator will not cultivate refuge lands between October 1 and April 1 without the Refuge Manager's approval.

6) A 100 ft. buffer strip will be required between crop fields and any existing bodies of water and a minimum of 20 feet along any existing ditch or stream. These strips will be vegetated with a suitable long-term vegetation to prevent soil erosion. The cooperator will mow these areas when instructed by the Manager.

(Cooperator's Signature)	(Refuge Manager)
(Date)	(Date)

REPORT OF HERBICIDE USE

Cooperative Farmer: _____

Calendar Year: _____

Field #	Herbicides Used	Crops Treated	Target Pest	**lbs. A.I.**/Ac. Applied	# Acres Treated	Total **lbs.** of **A.I.** Applied	Date(s) Applied

REPORT OF FERTILIZER USE

Cooperative Farmer: _____

Calendar Year: _____

Field #	Fertilizer (Formulation) **(N-P-K)**	**lbs.** of **Actual** nitrogen, phosphate and/or potash per acre (per formulation)	Crops Used On	Acres Applied To	Date(s) Applied	Total **lbs.** of **Actual** N, P, K applied

N = nitrogen, P = phosphorus and K = potash (potassium)

CROP YIELDS

Cooperative Farmer: _____

Calendar Year: _____

Field #	Crop	Actual Crop Acreage	Date Harvested	Yield bu./acre	Total Production (bu.)

Herbicides 1989

Herbicide	Trade Name	Crop	Target Pest
Pendimethalin	Prowl	crn, milo, soybn	#2, #4
Fosamine	Krenite	non-crop	#5
EPTC-R-25788	Eradicane	corn	#2, #4
Glyphosate	Roundup	crn, soybn, noncrp	#2, #4, #5
Butylate	Sutan+6.7E	corn	#4
Bentazon	Basagran	crn, soybn	#2
Dalapon	Dowpon	crn, soybn	#4
Linuron	Lorox	crn, soybn	#2, #4
Glyphosate	Rodeo	non-crop	#6
Imazaquin	Scepter	soybeans	#2
Acifluorfen	Blazer	soybeans	#2
Dicamba	Banvel	corn, milo	#2

#2: broadleaf weeds
#4: grasses
#5: brush
#6: brush & trees

Field Cropping History

Field CA-1

Acreage 43

Soil Type Tice silt loam

Land Class IIw

General:

Subject to flooding during all seasons of the year but more frequently during the spring and fall. Receives heavy goose (primarily snow geese) and duck use when cropped to wheat and corn.

Year	Crop(s) - Acres	Comment
1975	C-32, SB-8	
1976	SB, SWA-32, WW & CL-8	
1977	SB, SWA-24, WW-8, CL-8	
1978	C-32, CL-8	
1979	C-20, SB, SWA-20	
1980	CL-15, SB, SWA-25	
1981	C-15, SB, SWA-25	
1982	SB, SWA-40	
1983	SB, SWA-25, CL-15	
1984	C-10, SB-19, WW-11	
1985	C-9, SB-19, WW-12	
1986	SB-19, C-12, WW-9	Crops not harvested
1987	SB-19, C-15, WW-6	
1988	SB-28, WW-14	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-2

Acreage 51

Soil Type Tice silt loam

Land Class IIw

General:

Subject to flooding during all seasons of the year, especially spring and fall. When cropped to wheat for browse or corn it receives heavy waterfowl use.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-32, CL-17	
1976	SB, SWA-37, WW-12	
1977	C-49	
1978	C-49	
1979	SB, SWA-34, CL-15	
1980	CL-11, SB, SWA-38	
1981	C-38, SB, SWA-11	
1982	C-11, SB, SWA-38	
1983	SB, SWA-11, CL-11, C-27	
1984	SB-25, C-13, WW-11	
1985	SB-25, C-13, WW-11	
1986	SB-24, C-14, WW-11	
1987	SB-24, C-16, WW-9	
1988	SB-26, C-16, WW-9	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-3

Acreage 56

Soil Type Tice silt loam

Land Class IIw

General:

Subject to flooding during all seasons of the year, especially spring and fall. When cropped to wheat for browse or corn it receives heavy waterfowl use.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-19, CL-17, C-12, SB-8	
1976	SB, SWA-42, CL-14	
1977	C-56	
1978	CL-11, SB, SWA-45	
1979	C-18, SB, SWA-27, I-11	
1980	SL-12, JM-8, C-20, SB, SWA-16	
1981	C-12, SB, SWA-36, FPM-8	
1982	FPM-8, SB, SWA-33, WW-13	Treated cane on 13 acres
1983	FP-8, SB, SWA-6, CL-16, C-16	
1984	SB-16, C-16, WW-16, M-8	
1985	SB-18, C-20, WW-18	
1986	SB-20, C-25, WW-11	
1987	SB-20, C-27, WW-9	
1988	SB-20, C-26, JM-9	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-4

Acreage 70

Soil Type Tice silt loam

Land Class IIw

General:

This field is one of the highest areas on the refuge and it does not flood except during extreme floods. This area is often planted to corn for waterfowl because the rest of the refuge is flooded at corn planting time. Waterfowl use is heavy on this field when planted to wheat or corn.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-8, CL-10, C-15, SB-29	
1976	C-62	
1977	SB, SWA-62	
1978	C-11, WW-10, SB, SWA-41	
1979	SB, SWA-44, C-18	
1980	CL-8, C-20, SB, SWA-34	
1981	SB, SWA-54, C-8	
1982	C-15, SB, SWA-37, WW-10	Treated shatter cane
1983	SB, SWA-32, CL-10, C-20	
1984	SB-42, C-10, WW-10	
1985	SB-42, C-10, WW-10	
1986	SB-32, C-30	
1987	SB-32, C-30,	
1988	SB-31, C-26, WW-10	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-5

Acreage 28

Soil Type Tice silt loam

Land Class IIw

General:

This field receives heavy waterfowl use when planted to wheat or corn. It is one of the higher areas of the refuge, receiving less flooding than most of the refuge.

Year	Crop(s) - Acres	Comment
1975	C-11, SB, SWA-12	
1976	SB, SWA-23	
1977	C-23	
1978	C-23	
1979	C-14, SB, SWA-9	
1980	SB, SWA-15, C-8	
1981	SF-6, SB, SWA-7, WW-10	
1982	C-13, CL-10	
1983	SB, SWA-13, C-10	
1984	SB-13, C-10	
1985	SB-15, C-8	
1986	SB-23	
1987	C-11	
1988	SB-28	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-6

Acreage 25

Soil Type Tice silt loam

Land Class IIw

General:

This field is bordered on the west by the county highway and on the east by the Illois Department of Conservation Pohlman Slough public use area. This area receives heavy waterfowl use when planted to wheat or corn, but the birds are subject to considerable disturbance from the public.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-25	
1976	C-25	
1977	SB, SWA-25	
1978	SB, SWA-20, WW-5	
1979	C-13, SB, SWA-12	
1980	C-13, SB, SWA-6, SF-6	
1981	FP-6, SB, SWA-19	
1982	C-15, SB, SWA-10	
1983	SB, SWA-15, CL-10	
1984	SB-25	
1985	WW-8, SB-17	
1986	C-17, SB-8	
1987	SB-17, WW-8	
1988	C-6, SB-8	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-7

Acreage 13

Soil Type Beaucoup silty clay loam

Land Class IIw

General:

This field is bordered on the west by a row of large trees which tends to prevent waterfowl usage. Local wildlife do use this area when planted to row crops. This field is subject to flooding.

Year	Crop(s) - Acres	Comment
1975	C-14	
1976	C-14	
1977	C-14	
1978	Cl-14	
1979	SB, SWA-14	
1980	SB, SWA-14	
1981	SB, SWA-14	
1982	SB, SWA-14	
1983	SF-5, C-9	
1984	WW-5, C-9	
1985	SB-14	
1986	C-14	
1987	SB-17	
1988	C-12	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-8

Acreage 61

Soil Type Tice silt loam

Land Class IIw

General:

Receives heavy goose use when planted to corn or wheat. Geese using the field are very visible to the public since it is located next to the county road.

Year	Crop(s) - Acres	Comment
1975	C-35, SB-23	
1976	C-14, SB, SWA-44	
1977	C-58	
1978	SB, SWA-33, C-25	
1979	SB, SWA-33, C-25	
1980	CL-15, SB, SWA-43	Clover sowed after corn harvested
1981	C-50, SB, SWA-8	
1982	SB, SWA-58	
1983	SB, SWA-38, C-20	
1984	SB-38, C-20	
1985	SB-34, C-24	
1986	SB-42, WW-16	
1987	SB-41, WW-17	
1988	C-45, SB-16	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-9

Acreage 17

Soil Type Beaucoup silty clay loam

Land Class IIw

General:

Receives heavy goose use when planted to corn or wheat. Geese using this field are very visible to the public and disturbance is high during the hunting season. Subject to spring and fall flooding.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-15	
1976	CL with WW-15	
1977	I-15	
1978	C-15	
1979	SB, SWA-15	
1980	C-15	
1981	SB, SWA-12, FP-3	
1982	FP-4, SB, SWA-11	
1983	SB, SWA-15	
1984	SB-15	
1985	SB-15	
1986	SB-15	
1987	C-15	
1988	SB-15	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-10

Acreage 35

Soil Type Beaucoup silty clay loam

Land Class IIw

General:

Subject to flooding during all seasons of the year especially spring and fall. This field often stays wet late in the season preventing any corn planting and making it difficult to follow a crop rotation plan. When cropped to wheat or corn it receives heavy waterfowl use.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-29	
1976	C-15, CL-14	
1977	LC and Oats-29	
1978	C-14, CL-15	
1979	SB, SWA-9, C-20	
1980	SB, SWA-19, WW-10	
1981	CL-10, SB, SWA-19	
1982	CL-10, SB, SWA-19	
1983	SB, SWA-15, C-14	
1984	SB-10, C-10, WW-9	
1985	SB-9, C-10, WW-10	
1986	SB-10, C-19	
1987	SB-19, C-10	
1988	SB-16, WW-19	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-11

Acreage 60

Soil Type Beaucoup silty clay loam

Land Class IIw

General:

Subject to flooding during all seasons, especially spring and fall. This field often stays too wet in the spring to plant corn making it difficult to follow a crop rotation plan. When cropped to wheat or corn it receives heavy waterfowl use.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-67	
1976	C-67	
1977	SB, SWA-67	
1978	C-35, SB, SWA-32	
1979	SB, SWA-67	
1980	WW-15, C-13, SB, SWA-39	
1981	CL-15, SB, SWA-42, C-10	
1982	SB, SWA-47, WW-5, C-15	
1983	SB, SWA-42, C-15	
1984	SB-42, C-25	
1985	C-67	
1986	SB-46, WW-21	
1987	SB-21, C-32, WW-14	
1988	SB-21, C-25, WW-14	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-12

Acreage 27

Soil Type Tice silt loam

Land Class IIw

General:

Subject to flooding during the spring and fall. Heavily used by ducks and geese when planted to wheat or corn.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-29, C-22	
1976	SB, SWA-51	
1977	SB, SWA-28, C-23	
1978	SB, SWA-42, WW-9	
1979	SB, SWA-51	
1980	WW-14, C-14, SB, SWA-23	
1981	CL-15, C-15, SB, SWA-21	
1982	C-15, SB, SWA-36	
1983	SB, SWA-31, C-20	
1984	SB-21, M-20, WW-10	
1985	SB-36, C-15	
1986	SB-25, C-25	
1987	SB-39, WW-12	
1988	SB-15, WW-12	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-13

Acreage 80

Soil Type Tice silt loam

Land Class IIw

General:

Subject to flooding during all seasons, especially during the spring and fall. Receives heavy duck and goose use when cropped to wheat or corn.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-52	
1976	SB, SWA-52	
1977	SB, SWA-52	
1978	SB, SWA-52	
1979	SB, SWA-37, C-15	
1980	C-10, CL-10, SB, SWA-32	
1981	CL-12, SB, SWA-40	
1982	C-20, SB, SWA-32	
1983	SB, SWA-52	
1984	SB-52	
1985	WW-16, SB-36	
1986	C-52	
1987	SB-37, WW-15	
1988	SB-50, C-30	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-14

Acreage 11

Soil Type Beaucoup silty clay loam

Land Class IIw

General:

Subject to flooding throughout the year, especially during the spring and fall. Receives heavy waterfowl use when cropped to corn or wheat.

Year	Crop(s) - Acres	Comment
1975	C-18	
1976	C-18	
1977	LC-18	
1978	C-18	
1979	SB, SWA-18	
1980	C-18	
1981	SB, SWA-18	
1982	SB, SWA-18	
1983	C-18	
1984	SB-18	
1985	SB-18	
1986	WW-18	
1987	C-12, JM-6	
1988	SB-12	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-15

Acreage 38

Soil Type Tice silt loam

Land Class IIw

General:

Heavy waterfowl use when planted to wheat, corn or millet. Field has a slight slope to it. The north edge often floods but the south side is much more protected and seldom floods.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-33	
1976	C-33	
1977	SB, SWA-33	
1978	SB, SWA-22, C-11	
1979	SB, SWA-23, C-10	
1980	SF-6, SB, SWa-17, WW-10	
1981	CL-10, SB, SWA-23	
1982	C-20, SB, SWA-13	
1983	SB, SWA-15, SF-3, C-15	
1984	SB-13, WW-5, C-15	
1985	SB-17, WW-16	
1986	C-33	
1987	SB-33	
1988	SB-25, WW-21	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field CA-16

Acreage 13

Soil Type Tice silt loam

Land Class IIw

General:

Field is subject to flooding typically during the spring and fall. It receives heavy waterfowl use when planted to corn or millet.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-9	
1976	SB, SWA-9	
1977	C-9	
1978	SB, SWA-9	
1979	SB, SWA-9	
1980	SB, SWA-9	
1981	SB, SWA-9	
1982	SF-3, SB, SWA-6	
1983	C-9	
1984	M-9	
1985	C-9	
1986	WW-9	
1987	C-9	
1988	SB-10	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field Goose Pasture

Acreage 27

Soil Type Tice silt loam

Land Class IIw

General:

This field is subject to flooding typically during the spring and fall. When planted to wheat it provides green browse which is heavily used by geese.

Year	Crop(s) - Acres	Comment
1975	I	
1976	I	
1977	WW-22	
1978	WW-22	
1979	SF-5, JM-5, I-12	
1980	FPM-22	
1981	FPM-22	
1982	FPM-22	
1983	WW & FP Mixture 22	
1984	WW & FP Mixture 22	
1985	WW-22	
1986	WW-22	
1987	WW-22	
1988	WW-22	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field AU-26-3

Acreage 12

Soil Type Beaucoup silty clay loam

Land Class IIw

General:

This silty clay loam is naturally poorly drained. This field is low in productivity and receives little waterfowl use. Government's share of crops are sold and the receipts are deposited in the 5092 account.

Year	Crop(s) - Acres	Comment
1975	C-16	
1976	C or SB-16	
1977	C or SB-16	
1978	C or SB-16	
1979	C or SB-16	
1980	C or SB-16	
1981	C or SB-16	
1982	C or SB-16	
1983	C or SB-16	
1984	C or SB-16	
1985	C or SB-16	
1986	C or SB-16	
1987	C or SB-16	
1988	C-12	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field AU-26-4

Acreage 17

Soil Type Beaucoup silty clay loam

Land Class IIw

General:

This silty clay loam is naturally poorly drained. This field is low in productivity and receives little waterfowl use. Government's share of crops are sold and the receipts are deposited in the 5092 account.

Year	Crop(s) - Acres	Comment
1975	C-18	
1976	C or SB-18	
1977	C or SB-18	
1978	C or SB-18	
1979	C or SB-18	
1980	C or SB-18	
1981	C or SB-18	
1982	C or SB-18	
1983	C or SB-18	
1984	C or SB-18	
1985	C or SB-18	
1986	C-18	
1987	C-18	
1988	SB-12	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field AU-26-5

Acreage 24

Soil Type Beaucoup silty clay loam

Land Class IIw

General:

This silty clay loam is naturally poorly drained. This field is low in productivity and receives little waterfowl use. Government's share of crops are sold and the receipts are deposited in the 5092 account.

Year	Crop(s) - Acres	Comment
1975	C-24	
1976	C or SB-24	
1977	C or SB-24	
1978	C or SB-24	
1979	C or SB-24	
1980	C or SB-24	
1981	C or SB-24	
1982	C or SB-24	
1983	C or SB-24	
1984	C or SB-24	
1985	C or SB-24	
1986	C or SB-24	
1987	C or SB-24	
1988	C-24	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field AU-26-6

Acreage 13

Soil Type Wakeland silt loam

Land Class IIw

General:

Soil is poorly drained and low in productivity. Receives little waterfowl use because of its location. The government's share of crops from this field are sold and the receipts are deposited in the 5092 account.

Year	Crop(s) - Acres	Comment
1975	C or SB-7, JM-7	
1976	C or SB-20	
1977	C or SB-20	
1978	C or SB-20	
1979	C or SB-20	
1980	C or SB-20	
1981	C or SB-20	
1982	C or SB-20	
1983	C or SB-20	
1984	C or SB-20	
1985	C or SB-20	
1986	C or SB-20	
1987	C or SB-13	
1988	C or SB-13	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field AU-26-7

Acreage 10

Soil Type Wakeland silt loam

Land Class IIw

General:

Soil is poorly drained and low in productivity. Receives little waterfowl use because of its location. The government's share of crops from this field are sold and the receipts are deposited in the 5092 account.

Year	Crop(s) - Acres	Comment
1975	C or SB-10	
1976	C or SB-10	
1977	C or SB-10	
1978	C or SB-10	
1979	C or SB-10	
1980	C or SB-10	
1981	C or SB-10	
1982	C or SB-10	
1983	C or SB-10	
1984	C or SB-10	
1985	C or SB-10	
1986	C or SB-10	
1987	C or SB-10	
1988	SB-10	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field AU-26-10

Acreage 6

Soil Type Beaucoup silty clay loam

Land Class IIw

General:

This field is one of the lower fields on the Calhoun Division and is subject to considerable flooding especially during the spring and fall. It is generally the first to flood and the last to drain. The field receives heavy waterfowl use if it is flooded when planted to corn or millet.

Year	Crop(s) - Acres	Comment
1975		Not in production yet
1976	SB-6	
1977	C-6	
1978	SB, SWA-6	
1979	SB, SWA-6	
1980	SB, SWA-6	
1981	SB, SWA-6	
1982	C-6	
1983	C-6	
1984	M-6	
1985	C-6	
1986	JM-6	
1987	JM-6	
1988	JM-6	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field AU-26-13

Acreage 31

Soil Type Beaucoup silty clay loam

Land Class IIw

General:

Subject to flooding during all seasons, especially spring and fall. Field is one of the lower farm fields on Calhoun, making it one of the first fields to go under water during flood conditions. This flooding makes it hard to follow a crop rotation program.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-19	
1976	SB-19	
1977	SB, SWA-19	
1978	SB, SWA-19	
1979	SB, SWA-17, C-2	
1980	SB, SWA-19	
1981	SB, SWA-19	
1982	C-19	
1983	SB, SWA-19	
1984	SB-19	Field was too wet to farm
1985	SB-19	
1986	C-19	
1987	C-15	
1988	SB-15, C-16	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field PM-1 Gilbert Lake

Acreage 36

Soil Type Worthen silt loam

Land Class I

General:

The northern 200 yards of the field has a slight slope (2 to 4%). The rest of the area is nearly flat. The southern half is subject to spring and fall flooding. This field receives heavy waterfowl use on the areas planted to corn, winter wheat, alfalfa, and buckwheat.

Year	Crop(s) - Acres	Comment
1975	C-24, SB, SWA-16	
1976	AG-10, SB, SWA-30	
1977	AG-10, C-30	
1978	AG-10, C-30	
1979	AG-10, C-25, SB, SWA-5	
1980	AG-10, SB-5, C-20, BW-7	
1981	AG-10, CL-5, SB, SWA-20, BW-7	
1982	C-25, CL-5, SB-5, BW-7	
1983	C-35, BW-7	
1984	AG-11, C-12, C or SB-12, WW-7	
1985	C-12, SB-14, AG-11	Acres reduced by willows
1986	SB-9, C-9, WW-8, AG-11	Sprayed Rodeo on willows
1987	SB-10, C-12, WW-3, AG-11	
1988	SB-12, C-10, WW-3, AG-11	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field **PM-2 Gilbert Lake**

Acreage **44**

Soil Type **Worthen silt loam**

Land Class **I**

General:

The northern 200 yards of the field has a slight slope (2 to 4%). The northern half was declared a national archeological site and must be farmed using special techniques. The south side is subject to flooding. This field receives heavy goose use and some duck use on areas planted to corn, alfalfa, ladino clover, winter wheat, buckwheat or millet.

Year	Crop(s) - Acres	Comment
1975	C-36	
1976	SB, SWA-36	
1977	C-36	
1978	SB, SWA-16, C-20	
1979	SB, SWA-10, C-30	
1980	SF-5, SB, SWA-20, C-8	
1981	C-25, SF-5, SB, SWA-6	
1982	SB-6, A-14, LC-15	Ac. reduced (archeological site)
1983	C-3, A-14, LC-15, JM-5, BW-3	
1984	C or SB-3, A-14, LC-15, WW-8	
1985	SB-3, WW-8, A-14, LC-15	
1986	C-10, WW-1, A-14, LC-15	
1987	SB-7, WW-4, A-14, LC-15	
1988	C-7, WW-4, A-14, LC-15	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field AU-26-17 Gilbert Lake

Acreage 24

Soil Type Tice silty clay loam

Land Class IIw

General:

Soil is low to moderate in productivity and has a high available water holding capacity. Field is subject to flooding during all seasons of the year. Receives heavy waterfowl use when planted to corn, winter wheat, buckwheat or milo.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-50	
1976	C-30	
1977	SB-30	
1978	SB, SWA-30	
1979	SB, SWA-30	
1980	SB-18, BW-7	
1981	C-18, BW-9	
1982	BW-9, SB, SWA-18	
1983	SB, SWA-18, BW-6	
1984	SB-18, M-6	Crops Not Planted due to flood
1985	SB-16, WW-8	
1986	SB-16, WW-8	
1987	SB-16, WW-8	
1988	SB-16, WW-8	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field **AU-26-18 Gilbert Lake**

Acreage **9**

Soil Type **Beaucoup silty clay loam**

Land Class **IIw**

General:

Field is subject to flooding during all seasons. Receives heavy waterfowl use when planted to corn, winter wheat and buckwheat.

Year	Crop(s) - Acres	Comment
1975	SB, SWA-10	
1976	C-10	
1977	SB-10	
1978	SB, SWA-10	
1979	SB, SWA-10	
1980	C-12	
1981	SB, SWA-12	
1982	SB, SWA-12	
1983	SB-11, BW-5	
1984	SB-9, WW-7	Crops Not Planted due to flood
1985	SB-9	Acres decreased by willows
1986	SB-9	
1987	SB-6, WW-3	
1988	SB-6, WW-3	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field AU-26-21

Acreage 3

Soil Type Beaucoup silty clay loam

Land Class IIw

General:

Subject to flooding during the spring and fall. This field is a small narrow field bordered on the south by land that is farmed by the cooperator and the north by timber along Swan Lake. Receives little use by waterfowl because of its location and size. The government's share of crops from this field are sold and the receipts are deposited in the 5092 account.

Year	Crop(s) - Acres	Comment
1975	C or SB-3	
1976	C or SB-3	
1977	C or SB-3	
1978	C or SB-3	
1979	C or SB-3	
1980	C	
1981	C or SB-3	
1982	C or SB-3	
1983	C or SB-3	
1984	C or SB-3	
1985	C or SB-3	
1986	C or SB-3	
1987	C or SB-3	
1988	C or SB-3	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field AU-25-2

Acreage 27

Soil Type Haymond silt

Land Class IIw

General:

High in lime content, receives light waterfowl use if planted to wheat, corn or milo.

Year	Crop(s) - Acres	Comment
1975	WW-21, SB-4, C-2	
1976	WW-21, C or SB-6	
1977	WW-21, C or SB-6	
1978	WW-21, C or SB-6	
1979	WW, C or SB-27	
1980	C-21, M-6	
1981	S or SB-21, M-6	
1982	C or SB-21, M-6	
1983	C or SB-21, M-6	
1984	WW-5, M-6, C or SB-16	
1985	WW-5, C or SB-22	
1986	WW-5, C-6 C or SB-16	
1987	WW-5, C-6, C or SB-16	
1988	SB-16, C-6, WW-5	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field AU-25-3

Acreage 36

Soil Type Haymond Silt

Land Class IIw

General:

Field is subject to overflow in spring and fall. Receives moderate waterfowl use when it is planted to corn, millet or winter wheat. Desilting basin has corrected most of overflow problem.

Year	Crop(s) - Acres	Comment
1975	C or SB-23	
1976	C or SB-23	
1977	C or SB-23	8 ac. WW sown after SB harvest
1978	C or SB-23	
1979	C or SB-23	
1980	C-10, SB-13	
1981	C-10, SB-13	
1982	I-23	Field Flooded
1983	I-23	Field Flooded
1984	WW-9, C or M-11	Desilting basin constructed.
1985	WW-5, SB or C-15	D. basin cleaned, WW sown.
1986	I-15, SB or C-8	
1987	C-11, SB or C-12	
1988	C-36	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field AU-25-4

Acreage 20

Soil Type Haymond silt

Land Class IIw

General:

Field is subject to overflow in spring and fall. Receives moderate waterfowl use when it is planted to corn or milo. Desilting basin has corrected most of overflow problem.

Year	Crop(s) - Acres	Comment
1975	C or SB-20	
1976	C or SB-20	
1977	C or SB-20	
1978	C or SB-20	
1979	C or SB-20	
1980	C-10, SB-10	
1981	C-10, SB-10	
1982	C or SB-20	
1983	C or SB-20	
1984	C or M-6, SB or C-14	
1985	C-15, M-5	
1986	C or SB-20	
1987	C-3, SB or C-17	
1988	C-20	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix

Field Cropping History

Field AU-25-5

Acreage 4

Soil Type Wakeland silt loam

Land Class IIw

General:

Subject to serious flooding conditions especially in the spring and fall. Received moderate waterfowl use when planted to corn.

Year	Crop(s) - Acres	Comment
1975	C-21	
1976	C or SB-21	
1977	C or SB-21	
1978	C or SB-21	
1979	C or SB-11	Flooded
1980	C & SC-6, SF-6	Willow growth was plowed under.
1981	SC-6, SF-6	
1982	I	Turner Creek flooded field.
1983	I	This field was still flooded.
1984	SB or C-12	
1985	SB or C-12	
1986	C or SB-12	
1987	SB, C-12	
1988	C-4	

C = Corn; SB = Soybeans; I = Idle; BW = Buckwheat; M = Milo; WW= Winter Wheat; JM = Japanese Millet; SF= Sunflowers; CL = Clover; A = Alfalfa; AG = Alfalfa-Grass Mixture; LC = Ladino Clover - Alfalfa Mixture; SWA = Winter Wheat (aerially seeded into unharvested soybeans); SC = Sweet Clover; Field Peas and FPM = Food Patch Mix