STATE OF ILLINOIS

DEPARTMENT OF MINES AND MINERALS

LAND RECLAMATION DIVISION

BRAD EVILSIZER
DIRECTOR

227 SOUTH 7TH ST – RM 201
SPRINGFIELD ILLINOIS 62706
TELEPHONE (217) 782-4970

LAND RECLAMATION DIVISION MEMORANDUM NO. 86-3

TO: Recipients of Illinois Rules and Regulations
The Surface Coal Mining Land Conservation & Reclamation Act

FROM: Douglas Downing, Supervisor
Land Reclamation Division

DATE: July 9, 1986

RE: Amendments to 62 Ill. Adm. Code 1816.111-117, 1817.111-117, 1823.15 and 1825.11
Illinois State Permanent Program Rules and Regulations

Attached is a copy of rules adopted primarily to implement and administer revegetation success standards. These rules include the Agricultural Land Productivity Formula which will be utilized to measure the success of revegetation on prime farmland and other cropland areas.

These rules also include changes to make the Illinois rules consistent with the new federal rules.

TITLE 62: MINING
CHAPTER I: DEPARTMENT OF MINES AND MINERALS

PART 1816
PERMANENT PROGRAM PERFORMANCE STANDARDS
SURFACE MINING ACTIVITIES

Section

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AUTHORITY: Implementing and authorized by the Surface Coal Mining Land Conservation and Reclamation Act (Ill. Rev. Stat. 1985, ch. 96 1/2, pars. 7901.01 et seq.).

SOURCE: Adopted at 4 Ill. Reg. 37, p. 1, effective June 1, 1982; amended at 6

Ill. Reg. 1, effective June 1, 1982; amended at 6 Ill. Reg. 15024, effective December 30, 1982; codified at 8 Ill. Reg. 8224; amended at 9 Ill. Reg. 13310, effective October 10, 1985; amended at 10 Ill. Reg. _____, effective _____.

Section 1816.111 Revegetation: General Requirements

a) The permittee shall establish on regraded areas and on all other disturbed areas except areas where vegetative cover is inconsistent with the approved post-mining land use, a vegetative cover that is in accordance with the approved permit and reclamation plan and that is:
   1) Diverse, effective, and permanent;
   2) Comprised of species native to the area, or of introduced species where desirable and necessary to achieve the approved post-mining land use and approved by the Department;
   3) At least equal in extent of cover to the natural vegetation of the area; and
   4) Capable of stablilizing the soil surface from erosion.

b) The reestablished plant species shall:
   1) Be compatible which the approved post-mining land use;
   2) Have the same seasonal characteristics of growth as the original vegetation;
   3) Be capable of self-regeneration and plant succession;
   4) Be compatible with the plant and animal species of the area; and
   5) Meet the requirements of the Illinois Noxious Weed Law (Ill. Rev. Stat. 1985, ch. 5, pars. 951 et seq.), The Illinois Seed Law (Ill. Rev. Stat. 1985, ch.5, pars. 401 et seq.) and the Illinois Pesticide Act of 1979 (Ill. Rev. Stat. 1985, ch. 5, pars. 801 et seq.)

c) In order to prevent soil erosion, the Department shall grant an exemption to the requirements of subsections (b)(2) and (b)(3) when the reestablished species will achieve a quick-growing, temporary stabilizing cover, and measures to establish permanent vegetation are included in the approved permit and reclamation plan.

d) When the Department approved a cropland post-mining land use, the permittee shall be exempt from the requirements of subsections (a)(1), (a)(3), (b)(2), and (b)(3). The requirements of 62 Ill. Adm. Code 1823.15 apply to areas identified as prime farmland and those prime farmlands granted an exemption in accordance with 62 Ill. Adm. Code 1785.17(a)(5).

(Source: Amended at 10 Ill. Reg. _____, effective _____)

Section 1816.112 Revegetation: Use of Introduced Species (Repealed)

(Source: Repealed at 10 Ill. Reg. _____, effective _____)

Section 1816.113 Revegetation: Timing

Disturbed areas shall be planted during the first normal period for favorable planting conditions after replacement of the plant-growth medium. The normal period for favorable planting is that planting time generally accepted locally for the type of plant materials selected.

(Source: Amended at 10 Ill. Reg. _____, effective _____)

Section 1816.114 Revegetation: Mulching and Other Soil Stabilizing Practices

a) Mulch and other soil stabilizing practices shall be used on all areas that have been regraded and covered by topsoil or topsoil substitutes. The Department shall waive this requirement if seasonal, soil, or slope factors result in a condition where mulch and other soil stabilizing practices are not necessary to control erosion and to promptly establish an effective vegetative cover.

b) Mulches shall be mechanically or chemically anchored to the soil surface to assure effective protection of the soil and vegetation. The Department shall waive the mulch anchoring requirement where seasonal, soil, and/or slope factors result in a condition where anchoring is not necessary to stabilize the mulch.

(Source: Amended at 10 Ill. Reg. _____, effective _____)

Section 1816.115 Revegetation: Grazing (Repealed)

(Source: Repealed at 10 Ill. Reg. _____, effective _____)

Section 1816.116 Revegetation: Standards for Success

a)

1) Success of revegetation shall be judged in accordance with Sections 1816.116 and 1816.117.

2)

A) The period of extended responsibility for successful revegetation shall begin after the last year of augmented seeding, fertilizing, irrigation, or other work, excluding husbandry practices that are approved by the Department in accordance with subsection (a)(2)(C).

B) The period of extended responsibility shall continue for a period of not less than five (5) full years. Vegetation parameters identified in subsection (a)(1) shall equal or exceed the approved success standard set forth in subsection (a)(3).

C) The Department shall approve selective husbandry practices, excluding augmented seeding, fertilization, or irrigation, without extending the period of responsibility for revegetation success and bond liability, if such practices can be expected to continue as part of the post-mining land use or if discontinuance of the practices after the liability period expires will not reduce the probability of permanent revegetation success. Approved practices shall be normal conservation practices within the region for unmined lands having land uses similar to the approved post-mining land use of the disturbed area, including such practices as disease, pest, and vermin control; and any pruning, reseeding and/or transplanting specifically necessitated by such actions.

D)

i) In those cases where a permittee augments any high capability cropland areas in order to achieve the revegetation success standards of subsection (a)(3)(C), the permittee shall apply the same or superior augmentation measures to all other high capability lands reclaimed using the same techniques and the five (5) year period of responsibility shall recommence. The Department shall waive augmentation if the other high capability areas have been previously augmented in a similar or superior manner or have met the revegetation success standards for cropland or the permittee can document a minimum of three (3) years of successful woody species establishment for forest products and wildlife habitat land uses as required by Section 1816.117(a). If the woody species have been planted less than three (3) years prior to the augmentation of the high capability cropland areas, the Department shall grant additional time to evaluate the success of the woody species planting.

ii) The five (5) year period of responsibility shall not recommence on areas where the operator has met the revegetation success standards of subsection (a)(3)(E).

iii) If high capability cropland is augmented the Department shall retain sufficient performance bond at the time of phase II performance bond release to ensure the cost of similarly augmenting all other high capability lands, if required, is covered in the remaining bond amount.

3) Ground cover, production, or stocking shall be considered equal to the approved success standard when they are not less than ninety (90) percent of the success standard. The sampling techniques for measuring success shall use a ninety (90) percent statistical confidence interval (i.e., one-sided t test with a 0.10 alpha error). Standards for success shall be applied in accordance with the approved post-mining land use and, at a minimum, the following conditions:

A) The vegetative ground cover for areas previously disturbed by mining operations that were not reclaimed to the requirements of 62 Ill. Adm. Code 1810 through 1828 and that are remined or otherwise redisturbed by surface coal mining operations, shall not be less than the ground cover existing before redisturbance, and shall be adequate to control erosion;

B) For areas to be developed for industrial, commercial or residential use less than two (2) years after regrading is completed, the vegetative ground cover shall not be less than that required to control erosion;

C) For areas designated in the approved reclamation plan as cropland, except those cropland areas subject to 62 Ill. Adm. Code 1823.15, success of revegetation of cropland areas shall be determined in accordance with subsection (a)(4). Crop production shall be considered successful if it is ninety (90) percent of that crop production required in subsection (a)(4) with ninety (90) percent statistical confidence (i.e., one-sided t test with a 0.10 alpha error) for a minimum of any two (2) crop years of a ten (10) year period prior to release of the performance bond, provided crop years do not occur before the fourth year (inclusive) of the five (5) year responsibility period. During the extended five (5) year responsibility period, erosion from cropland must be minimized using equivalent or better management practices than surrounding unmined cropland. The five (5) year responsibility period shall begin after the last year of augmented seeding, fertilizing, or soil treatment and at the time of the planting of the crop(s) to be grown for the productivity showing or crops grown in rotation. Crop production for proof of productivity purposes shall be initiated within ten (10) years after completion of backfilling and final

grading;

D) For areas to be developed for fish and wildlife habitat (including shelter belts), recreation, or forest products land uses, success of revegetation shall be determined on the basis of tree and shrub stocking and ground cover. The tree and shrub stocking and ground cover shall meet the standards described in Section 1816.117; and

E) For areas designated as pasture and/or hayland or grazing land in the approved reclamation plan, except for erosion control devices and other structures (i.e., levees, ditches, waterways, impounding structures, etc.) success of revegetation (tons of grasses and/or legumes per acre) shall be determined in accordance with subsection (a)(4). Productivity shall be considered successful if it is ninety (90) percent of the productivity required in subsection (a)(4) with ninety (90) percent statistical confidence (i.e., one-sided t test with a 0.10 alpha error) for a minimum of any two (2) crop years of a ten (10) year period prior to release of the performance bond, provided that both production years do not occur before the fourth year (inclusive) of the five (5) year extended responsibility period. Revegetation success shall also be determined in accordance with Section 1816.117 (a)(2). Production for proof of productivity purposes shall be initiated within ten (10) years after completion of backfilling and final grading.

4) In order to use the Agricultural Lands Productivity Formula, Section 1816.Appendix A, to determine success of revegetation, the following shall apply:

A) The permittee shall submit annually, by February 15, a one (1) inch equals five hundred (500) feet (1:500) or larger scale drawing or aerial photograph delineating:

i) Field boundaries, a field numbering scheme and the total acreage for each field which will be cropped to demonstrate proof of productivity for the coming crop year. The Department shall approve such submittal if the information is correct and accurate. Once field boundaries are established in a submittal, the boundaries shall not be changed without recommencing the responsibility period, unless the submittal is amended in accordance with subsection (a)(4)(A)(iii); and

ii) The crop (e.g., hay, wheat, corn, soybeans, sorghum, etc.) which will be grown on each field to demonstrate proof of productivity for the coming crop year.

iii) The permittee may amend its scale drawing in accordance with 62 Ill. Adm. Code 1788.12 until July 15 of the submittal year. Each such amendment shall contain a written explanation of changes from the original submittal and include a map reflecting the

changes.

iv) A field is an area of land reclaimed by a single reclamation technique that comprises either high capability land or prime farmland or limited capability pasture land. The size of the field and its boundaries are determined by such factors which include, but are not limited to, contour, non-cropped boundaries and size of farming equipment.

B) Fields identified in subsection (a)(4)(A) to be measured for success of revegetation for cropland shall be planted annually to a single approved crop. The sampling method of Section 1816.Appendix A shall apply. Soil and water conservation practices approved in the permit application including but not limited to grass waterways, diversion ditches, contour grass strips, and sedimentation ponds within the boundaries of a field shall be excluded from the sampling requirements of Section 1816.Appendix A and shall remain vegetated with permanent ground cover species, where appropriate, to conserve soil and water resources. Subject to rulemaking, the Department in cooperation with the Illinois Department of Agriculture may determine if a portion of a field is a representative sample of the entire field when technology has developed to make it possible through physical and chemical agronomic testing to demonstrate success of vegetation through soil surveys or when statistically valid sampling procedures are developed for determining success of revegetation based upon cropping and sampling a representative portion of the field.

C) Adjustments for abnormal growing conditions shall be made if such adjustments are certified by a crop adjuster certified to perform adjustments by the Federal Crop Insurance Corporation. At the request of a permittee, the Department of Agriculture shall make arrangements for such an appraisal or adjustment review. Before any such adjustment or appraisal shall be arranged, the permittee shall file with the Illinois Department of Agriculture an agreement to pay the full cost of any crop adjustment or appraisal so requested.

D) The crops to be grown shall include those commonly grown on surrounding unmined cropland such as corn, soybeans, hay, sorghum, wheat, or oats. The Department may approve a hay crop use where this is a common use of unmined cropland in the surrounding area. Prime farmland and other cropland areas must include a minimum of one (1) successful year of corn and if the Department has approved its use a maximum of one (1) successful year of hay crop.

b) The person who conducts surface mining activities shall:

1) Conduct periodic measurements of vegetation, soils, and water prescribed or approved by the Department, to identify if remedial actions are necessary during the applicable period of liability specified in subsection (a) ; and

2) Permittees shall submit by January 1 of each year a report of reclamation activities conducted during the previous calendar year using forms provided by the Department. Reclamation activities to be reported include but are not limited to crops used in temporary and permanent seedings, grasses and legumes planted, trees and shrubs planted, soil amendments added, and location and type of augmentation activities. The forms shall be submitted with a copy of the approved post-mining land use and capability map depicting the location of such activities. The map shall be planned as a continuous map so the reclamation activities conducted each year may be added and indicated on the map by the dates the activities were conducted.

(Source: Amended at 10 Ill. Reg. _____, effective _____)

Section 1816.117 Revegetation: Tree and Shrub Stocking

a) For areas to be developed for fish and wildlife habitat (including shelter belts), recreation, or forest products land uses, success of vegetation shall be determined on the basis of tree and shrub stocking and vegetative ground cover. Such parameters are described as follows:
   1) Trees and shrubs that will be used in determining the success of stocking and the adequacy of plant arrangement shall have utility for the approved post-mining land use. Tree and/or shrub stocking shall be considered successful if it is ninety (90) percent of the stocking required in subsection (b) with ninety (90) percent statistical confidence (i.e., one-sided t test with a 0.10 alpha error). At the time of bond release such trees and shrubs shall be alive, and shall have been in place for at least three (3) growing seasons.
   2) Vegetative ground cover shall not be less than required to achieve the approved post-mining land use and shall be adequate to control erosion.
   3) Rock areas, permanent road and surface water drainage ways on the revegetated area shall not require stocking.
   4) For purposes of this Section, herbaceous species means grasses, lequmes and nonleguminous forbs; woody plants means woody shrubs, trees and vines; and ground cover means the area of ground covered by the combined aboveground parts of vegetation and the litter that is produced naturally on site.

b) For areas where woody plants are used for fish and wildlife habitat (including shelter belts), or recreation land uses, the area shall have a minimum stocking of two hundred and fifty (250) trees or shrubs per acre; where woody plants are used for forest products land uses, the area shall have a minimum stocking of four hundred and fifty (450) trees or shrubs per acre.

c) For areas planted to trees or shrubs including wildlife habitat (including shelter belts), recreation, and forest products land uses, the sampling procedure for measuring success of stocking is described as follows:
   1) The permittee shall submit a scale drawing or aerial photograph delineating the area(s) to be sampled and the total number of acres in each area. A one (1) inch equals five hundred (500) feet (1:500) or larger scale shall be used.
   2) One of the following circular plot sizes shall be selected by the sample enumerater:

Plot Size/Acres	Radius/Feet
1/160	9.31
1/120	10.75
1/100	11.78
1/90	12.41
1/80	13.17
1/70	14.07
1/60	15.20

1/50	16.65
1/40	18.61
1/30	21.50
1/20	26.33
1/10	37.24
1/5	52.66
1/4	58.88

3) The number of plots needed to sample 2.5 percent of the area will be calculated employing the following formula:
Number of Plots equals 2.5 percent multiplied by Sample Area in acres divided by plot size.

4) Based on the number of plots needed to be sampled and plot size, locate transect lines an equal distance apart throughout the area to be sampled. Position individual plots an equal distance apart along transect lines. Determine the total length of all transect lines combined and then divide by the total number of plots needed to be sampled. When an individual plot is positioned within sixty (60) feet of the boundary of the area to be sampled, the location of the plot shall be moved perpendicular to the transect line until the plot is sixty (60) feet from the boundary of the area to be sampled or the greatest distance possible where sixty (60) feet cannot be achieved.

5) Sample each plot for compliance with subsections (a)(1) and (b) and record live trees and/or shrubs and species.

6) Calculate stocking levels as follows:
A) Average number of live trees and/or shrubs per plot equals Total Number of live trees and/or shrubs divided by number of plots; and
B) Number of live trees and/or shrubs per acre equals Average number of live trees and/or shrubs per plot multiplied by plot size denominator.

7) Representatives of the Department or the Illinois Department of Conservation shall conduct all sampling.

(Source: Amended at 10 Ill. Reg. _____, effective _____)

Section 1816.APPENDIX A AGRICULTURAL LANDS PRODUCTIVITY FORMULA

SOIL MASTER FILE

The Soil Master File of the Agricultural Lands Productivity Formula contains a comprehensive list of the soil mapping units currently recorded in Illinois. The Soil Master File provides the soil mapping unit number, common mapping name, and the high level of management yields for corn, soybeans, wheat, oats and mixed hay. Section 1816.Table E is the Soil Master File.

Additional components of the Soil Master File are as follows:

1. County number - identifies soils unique to a county. County number also distinquishes between soils with the same name in different counties but with unique soil properties and yields. County numbers are identified in Section 1816.Table C County Numbering System.

2. Variance code - physical conditions which would cause similar soil types to produce radically different yields. Variance code is explained in Section 1816.Table B Soil Variance Code.

3. Switch code - identifies a point at which a particular soil at a given slope and/or erosion category becomes either a new soil, a complex soil or moves from a favorable to unfavorable subsoil. The alphanumeric switch code is the new slope and erosion code.

4. Subsoil type - either #1 favorable, or #2 unfavorable subsoil condition. Percent of adjustment that will be applied to both the high management yield in subsoil conditions provided in Section 1816.Table A - Subsoil Adjustments.

5. Slope and erosion - this category provides adjusted high management yields for slope and erosion groups for each soil series for each crop in the Agricultural Lands Productivity Formula.

COUNTY CROPPED ACREAGE FILE

The Agricultural Lands Productivity Formula requires that the number of cropped acres by soil mapping unit be calculated for each county. These calculations are generated by computer using the following formula:

Total acres per soil type per county	x	percent of total acreage cropped	=	acres per soil type cropped

The percent of total acreage cropped per soil type will be provided by County Soil and Water Conservation Districts. Any changes to these figures must be approved by the County Soil and Water Conservation District Board with a certified copy of all changes submitted by August 15 of each year to the Illinois Department of Agriculture.

Section 1816.Table F - County Cropped Acreage File reflects the total acres of each soil type per county, percent of acreage cropped, and the computed figure of total cropped acres by soil type in each county. The "total cropped acres" figures are carried forward to the County Average Yield File.

COUNTY AVERAGE YIELD FILE

The next procedure of the Agricultural Lands Productivity Formula is to equate annual county crop yield data to the soils derived in the "County Cropped Acreage File". Section 1816.Exhibit A and the following paragraphs summarize the procedure for calculating the crop yield for each soil mapping unit.

Column A reflects the soil mapping units as they appear on a county by county basis.

Column B is the number of acres cropped in a county per soil type as recorded in the County Cropped Acreage File. These cropped acreage figures are then added together to give a total number of acres cropped for the county.

Column C is the percent of the acreage represented by each soil type when compared with the total in Column B (Column B = total acres in soil mapping unit times the percent of acres cropped in the county by mapping unit).

The number of acres planted in grain (Column D) is calculated by multiplying the percent of each soil mapping unit in the county (Column C) by the total acres in the county harvested for corn, soybeans, wheat, oats, and mixed hay. (See asterisk in Section 1816.Exhibit A). The purpose of this calculation is to estimate the number of acres harvested from each of the particular soil mapping units. It is assumed that 25% of the total corn, soybean, wheat, oat and mixed hay acreage was planted on that particular soil mapping unit. Therefore, the "grain acres" are distributed on the soil mapping units based upon the percent of acres in each soil mapping unit.

Column E is the adjusted yield information for each crop which comes from Section 1816.Table E - Soil Master File.

Column F is a derived high management production (Figure) obtained by multiplying the figures in Column D times the figures in Column E. This production figure will normally exceed

actual production because the high level management yield is used. The purpose of using the high management production is to derive a weighted average high management yield; which is, the total high management production (Column F) divided by the total grain acres in the county (Column D). The weighted high management yield figure will be used to derive a "factor" as described below:

$$\text{Factor} = \frac{\text{Official County Crop Yield}}{\text{Weighted High Management Yield}}$$

Column G results from the multiplication of the above factor times the high level management yield of each soil mapping unit (Column E). The result is a yield which represents the average yield in either bushels per acre or tons per acre in the county for that year and crop.

PERMIT SPECIFICS
YIELD STANDARD

After completing calculations for the projected yield of the test year in question, a yield standard for each permit area must be calculated. The yield standard, which is also applicable to high capability standards of Section 1816.116(a)(3)(c) will be calculated in the following manner:

The number of prime farmland acres in each soil mapping unit will be divided by the total prime farmland acres in the mine permit area to obtain a weighted proportion for each soil type. The weighted proportion of each prime farmland soil mapping unit in the permit area, relative to the total prime farmland acres in the permit area, will be multiplied times the projected yield for the pre-mining soil types. The weighted final yield for each prime farmland soil type in a mining permit area will be added together and the total becomes the yield requirement for the permit area.

AGRICULTURAL LANDS PRODUCTIVITY FORMULA
SAMPLING METHOD

The sampling methodology that the Illinois Department of Agriculture or the Illinois Department of Mines and Minerals will use to gather the data needed to determine if productivity has been returned to reclaimed mine land is summarized below for corn, soybeans, wheat, oats, sorghum, and mixed hay.

This sampling methodology requires an operator to submit by February 15 of each year, a scale drawing or aerial photo delineating specific field boundaries and type of crop which is to be sampled for proof of productivity for the current crop year. Each scale drawing and photo submitted shall include a field numbering scheme and the total acreage for each field on

which sampling is being requested. In addition, the scaled drawing shall be no less than 1 inch equals 500 feet (1:500) or greater than 1 inch equals 100 feet (1:100). The February 15 annual submittal may be amended by the operator until July 15. Each such amendment shall contain a written explanation of changes from the original submittal and an aerial photograph or scaled drawing reflecting the corrected sampling submittal.

The determination of sample points within a specific field will be made on the basis of a grid overlay scheme with the location of sample points on the grid randomly generated by computer. An intentional bias of fifty feet (50') will be introduced to all field boundaries to remove the potential that sampling points may fall in turn around areas, or areas where contiguous soil reconstruction may cause field boundaries to not be indicative of whole field productivity.

The minimum acceptable number of samples to be taken relative to field size is shown in Section 1816.Table D sample points per crop acres, with fields of four acres or less to be sampled in their entirety with yields determined by harvest weight. Sample selections will take place using the following guidelines.

The Illinois Department of Agriculture may elect to increase the minimum number of acceptable sample points per field acres. Some factors which will be considered in determining whether to increase the number of sample points are as follows, but not limited to:

1. Operator requests additional sample points for specific fields.
2. The use of different hybrids in one field.
3. Contour changes within one field which would alter a yield.
4. A coefficient of variation greater than 15%.

The Department shall request the operator to verify yields by harvest weight (e.g., scale tickets) for reasons, including but not limited to:

1. Vertification of random sampling results.
2. Availability of sample enumerators.
3. Backlog of sample processing at the IDOA lab.

In each such case, the certified harvest yield adjusted, to optimum moisture content, will become the comparison yield for the Agricultural Lands Productivity Formula target yield.

CORN SAMPLING TECHNIQUE

Step 1 - Mark the starting corner of the field to be sampled with a large stake and attach a ribbon or flag to it.

Step 2 - Pace off predetermined sample point coordinates in a sequential fashion to determine individual sample locations.

Step 3 - After taking the last of the required paces to the first sampling point, place a stake immediately adjacent to the closest corn stalk to the toe of your shoe. Measure 15 feet of the corn row starting at the first stake and placing a second stake at the 15 foot mark. Move to the next adjacent corn row, measure and stake a second 15 foot section in the same manner as the first row. One sample unit will equal two fifteen foot corn row sections.

Step 4 - Determine the 3rd and 4th ears of the first row starting with the first stalk of corn. Tag these ears with a rubber band. If there are less than four ears in the first row, the last ear and the next to last ear should be tagged. In the case where a stalk has more than one ear, count the top ear first. (Note: An ear of corn is defined as a cob having at least one kernel. The tagged ears will be used to determine the moisture content, and at least 250 grams of grain are needed. If it does not appear that the 3rd and 4th ears will supply 250 grams of grain for a moisture test, then the 5th, 6th and/or 7th ear should be included until at least 250 grams of corn is collected).

Step 5 - Husk all ears in Row 1 within the fifteen foot segment of the sample. Husk the ears and snap the skank off as cleanly as possible. Be sure to include any ears tagged for moisture testing.

Step 6 - Weigh the husked ears using a balance scale - obtain field weight in pounds.

Step 7 - After weighing, put ears tagged for moisture testing into polyethylene bags and seal. Mark the bag with the appropriate field number (as supplied by the mine operator), and sample identification number.

Step 8 - Measure on a perpendicular line from the stalks in row one (1) to the stalks in row five (5). Divide this measured distance by four (4) to determine the average row width.

Step 9 - Repeat Steps 3 through 8 for each additional random sampling point coordinate.

Step 10 - Send or deliver to the Illinois Department of Agriculture any grain sample collected for moisture content analysis. (Note: If any single sample requires more than one bag, additional bags should be identified sequentially such as 1A, 1B, 1C).

The following method will be used for determination of gross yield of corn samples. Gross yield is determined by deducting the adjustment for moisture content of shelled corn from the harvest weight. Moisture content of the grain sample will be determined by lab analysis.

Gross Yield = Harvest Weight adjusted for moisture content.

Included below for reference is the Gross Yield formula and an explanation of its components.

$$\text{Gross Yield Per Acre (bu/ac)} = \frac{A \times B \times C}{D} \;/\; (E \times 56 \text{ lbs/bu})$$

where: A = Field weight of husked ears of corn from 15 feet of row x 2 (2 Rows x 15 feet);

B = Weight of shelled grain at time of moisture test;

C = Percent moisture in grain corrected to 15.5%;

$$= 1.0 - \frac{\text{(Moisture content of shelled corn)}}{100} \;/.845$$

D = Weight of ears of Corn used for moisture determination;

E = Row Factor

Area or percent of Acre Sampled with 30 feet of Row (2 rows x 15 feet)	
	30" = 0.001722
	36" = 0.002066
	38" = 0.002181
	40" = 0.002295

and .845 = The standard moisture content conversion factor of corn per bushel (1.0 - .155).

After calculation of the gross yield, the Harvest Loss will be substracted from the gross yield to obtain a net yield per sample. Harvest Loss is the difference between actual grain yield and what is hauled from a field. The net yield determinations for each sample will be averaged together to obtain a yield figure for the entire field being evaluated for proof of productivity.

SOYBEAN SAMPLING TECHNIQUE
BROADCAST BEANS

Step 1 - Mark the starting corner of the field to be sampled with a large stake and attach a ribbon or flag to it.

Step 2 - Pace off predetermined sample point coordinates in a sequential fashion to determine individual sample locations.

Step 3 - After taking the last of the required paces to the first sampling point, lay down a sampling frame so that it touches the toe of your shoe, crossing the crop rows at a right angle. Mark the two ends of the sampling frame with stakes just inside the 3.0 foot sampling tines. Continue to lay out the sample area in the direction of travel from where the last pace was counted. Rotate the sampling frame so that it is perpendicular to one corner of the stake (previously marked), and at a right angle to the original frame position. (Note: If at any time the point of a tine is restricted by a soybean plant, slide the soybean frame toward the starting point far enough for the point of the tine to clear the plant). Repeat this procedure to lay out the other two sides of the sampling square, using the opposite corner of the original frame position to find the other two sides.

Step 4 - Strip all the soybean pods from all the plants in the 9 square feet sampling area. Pick up any loose pods or beans found on the ground. Deposit all the pods, beans and blank pods, into a paper sack. Mark the sack with the appropriate field number (as provided by the mine operator), and sample identification number. Secure the sample sack to prevent any sample loss. (Note: If sample weight is below 250 grams for the moisture test, grain of known moisture content as is necessary to reach the test weight will be added to the sample so that moisture tests can be made).

Step 5 - Repeat steps 3 and 4 for each additional random sampling point coordinate.

Step 6 - Send or deliver to the Illinois Department of Agriculture any grain sample collected for moisture content analysis. (Note: If any single sample requires more than one bag, additional bags should be identified sequentially such as 1A, 1B, 1C).

The following method will be used for determination of gross yield of soybean samples. Gross yield is determined by deducting the adjustment for moisture content

of the soybean sample from the harvest weight. Moisture content of the grain sample will be determined by lab analysis.

Gross Yield = Harvest Weight adjusted for moisture content.

Included below for reference is the Gross Yield formula and an explanation of its components.

$$\text{Gross Yield Per Acre bu/ac} = \frac{\text{Total weight of all beans in 9 sq. ft. grid (in grams)} \times \text{Conversion Factor} \times 1.0 - (\%\ \text{moisture}/100)}{.875}$$

$$\text{Where the conversion factor} = \frac{43560 \text{ sq. ft./ac.}}{453.6 \text{ gms/lb} \times 60 \text{ lbs/bu} \times 9 \text{ sq. ft.}}$$

and .875 = The standard moisture content conversion factor of soybeans per bushel (1.0-(12.5%/100)).

After calculation of the gross yield, the Harvest Loss will be subtracted from the gross yield to obtain a net yield per sample. Harvest Loss is the difference between actual grain yield and what is hauled from the yield. The net yield determinations for each sample will be averaged together to obtain a yield figure for the entire field being evaluated for proof of productivity.

SOYBEAN SAMPLING TECHNIQUE
DRILLED OR PLANTED BEANS

Step 1 - Mark the starting corner of the field to be sampled with a large stake and attach a ribbon or flag to it.

Step 2 - Pace off predetermined sample point coordinates in a sequential fashion to determine individual locations.

Step 3 - After taking the last of the required paces to the first sampling point, mark the closest plant to the toe of your foot. Place a flag at the point that you have just marked. From the point of this flag, and in the direction of travel from where the last pace was counted, measure a distance of six feet of plant row and place a flag at the six foot mark. Starting from the row just identified, measure the distance across five rows. This distance, from row one to row five, divided by four row spaces gives the average row width.

Step 4 - Strip all the soybean pods from all the plants in the 6 foot sample row. Pick up any loose pods or beans found on the ground at the base of these plants. Deposit all the pods, beans and blank pods, into a paper sack. Mark the sack with the appropriate field number (as provided by the mine operator), and sample identification number. Secure the sample sack to prevent any sample loss. (Note: If sample weight is too small for the moisture test, sufficient grain of known moisture content will be added to the sample so that moisture tests can be made).

Step 5 - Repeat steps 3 and 4 for each additonal random sampling point coordinate.

Step 6 - Send or deliver to the Illinois Department of Agriculture any grain sample collected for moisture content analysis. (Note: If any single sample requires more than one bag, additional bags should be identified sequentially such as 1A, 1B, 1C).

The following method will be used for determination of gross yield of soybean samples. Gross yield is determined by deducting the adjustment of moisture content of the soybean sample from the harvest weight. Moisture content determinations will be made by the Illinois Cooperative Crop Reporting Service.

Gross Yield = Harvest Weight adjusted for moisture content.

Included below for reference is the Gross Yield formula and an explanation of its components.

$$\text{Gross Yield Per Acre (bu/acre)} = \frac{A \times B}{C \times D \times E}$$

Where A = Weight of harvested grain from 6 feet of row

B = Percent moisture in grain corrected to 12.5%

$$= \frac{(1.0 - (\%\ \text{moisture in shelled beans}/100\%))}{0.875}$$

C = Number of grams per pound = 453.6

D = Correction factor for row spacing on drilled or planted beans

$$= \frac{\text{Average row width across 5 rows (feet)} \times 6\ \text{feet of row}}{43560\ \text{sq. ft./acre}}$$

E = Standard weight of 1 bushel of soybeans = 60

After calculation of the gross yield, the Harvest Loss as calculated by Illinois Cooperative Crop Reporting Service will be subtracted from the gross yield to obtain a net yield per sample. The net yield determinations for each sample will be averaged together to obtain a yield figure for the entire field being evaluated for proof of productivity.

WHEAT SAMPLING TECHNIQUES

Step 1 - Mark the starting corner of the field to be sampled with a large stake and attach a ribbon or flag to it.

Step 2 - Pace off predetermined sample point coordinates in a sequential fashion to determine individual sample location.

Step 3 - After taking the last of the required paces to the first sampling point, lay down a sampling frame so that it touches the toe of your shoe, crossing the crop rows at a right angle. Mark the two ends of the sampling frame with stakes just inside the 1.8 feet samples tines. Continue to lay out the sample area in the direction of travel from where the last pace was counted. Rotate the sampling frame so that it is perpendicular to one corner of the stake (previously marked) and at a right angle to the original frame position. Repeat this procedure to lay out the other two sides of the sampling square using the opposite corner of the original frame position to find the other two sides.

Step 4 - Clip all wheat heads from within the square outlined by the sampling frame. The wheat heads should be clipped approximately 1/2 inch below the bottom of the head. Deposit all the collected wheat heads into a paper sample sack. Mark the sack with the approximate field number (as supplied by the mine operator), and sample

identification number. Secure the sample sack to prevent any sample loss. (Note: If sample weight is below 250 grams for the moisture test, grain of known moisture content will be added to the sample so that moisture tests can be made).

Step 5 - Repeat steps 3 and 4 for each additional random sampling point coordinate.

Step 6 - Send or deliver to the Illinois Department of Agriculture grain sample collected for moisture content analysis. (Note: If any single sample requires more than one bag, additional bags should be identified sequentially such as 1A, 1B, 1C).

The following method will be used for determination of gross yield of wheat samples. Gross yield is determined by deducting the adjustment for moisture content of the wheat sample from the harvest weight. Moisture content of the grain sample will be determined by lab analysis.

Gross Yield - Harvest Weight adjusted for moisture content.

Included below for reference is the Gross Yield formula and an explanation of its components.

$$\text{Gross yield Per Acre bu/ac} = \frac{\text{Sample wt. of wheat (in grams)} \times 1.0-(\%\ \text{moisture}/100)}{.880} \times \text{conversion factor}$$

Where the conversion factor $= \frac{43560 \text{ sq. ft/ac}}{60 \text{ lbs/bu} \times 453.6 \text{ gms/lb} \times 3.24 \text{ sq. ft.}} = .4940 \frac{\text{bu/gm}}{\text{acre}}$

and .88 = The standard moisture content conversion factor of wheat per bushel (1.0-(12%/100)).

After calculation of the gross yield, the Harvest Loss will be subtracted from the gross yield to obtain a net yield per sample. Harvest Loss is the difference between actual grain yield and what is hauled from a field. The net yield determinations for each sample will be averaged together to obtain a yield figure for the entire field being evaluated for proof of productivity.

OATS SAMPLING TECHNIQUE

Step 1 - Mark the starting corner of the field to be sampled with a large stake and attach a ribbon or flag to it.

Step 2 - Pace off predetermined sample point coordinates in a sequential fashion to determine individual sample location.

Step 3 - After taking the last of the required paces to the first sampling point, lay down a sampling frame so that it touches the toe of your shoe, crossing the crop rows at a right angle. Mark the two ends of the sampling frame with stakes just inside the 1.8 feet sampling tines. Continue to lay out the sample area in the direction of travel from where the last pace was counted. Rotate the sampling frame so that it is perpendicular to one corner of the stake (previously marked) and at a right angle to the original frame position. Repeat this procedure to lay out the other two sides of the sampling square using the opposite corner of the original frame position to find the other two sides.

Step 4 - Clip all oat heads from within the square outlined by the sampling frame. The oat heads should be clipped approximately 1/2 inch below the bottom of the head.

Deposit all the collected oat heads into a paper sample sack. Mark the sack with the appropriate field number (as supplied by the mine operator), and sample identification number. Secure the sample sack to prevent any sample loss. (Note: If sample weight is below 250 grams for the moisture test, grain of known moisture content will be added to the sample so that moisture tests can be made).

Step 5 - Repeat steps 3 and 4 for each additional random sampling point coordinate.

Step 6 - Send or deliver to the Illinois Department of Agriculture any grain sample collected for moisture content analysis. (Note: If any single sample requires more than one bag, additional bags should be identified sequentially such as 1A, 1B, 1C).

The following method will be used for determination of gross yield of oat samples. Gross yield is determined by deducting the harvest weight. Moisture content of the grain samples will be determined by lab analysis.

Gross Yield = Harvest Weight adjusted for moisture content.

Included below for reference is the Gross Yield formula and an explanation of its components.

$$\text{Gross yield Per Acre bu/ac} = \frac{\text{Sample wt. of oats (in grams)} \times 1.0-(\%\ \text{moisture}/100) \times \text{conversion factor}}{0.850}$$

$$\text{Where the conversion factor} = \frac{43560\ \text{sq. ft/ac}}{32\ \text{lbs/bu} \times 453.6\ \text{gms/lb} \times 3.24\ \text{sq. ft.}} = .9262\ \frac{\text{bu/gm}}{\text{acre}}$$

and .85 = The standard moisture content conversion factor of oats per bushel (1.0-(15%/100)).

After calculation of the gross yield, the Harvest Loss will be subtracted from the gross yield to obtain a net yield per sample. Harvest Loss is the difference between actual grain yield and what is hauled from a field. The net yield determinations for each sample will be averaged together to obtain a yield figure for the entire field being evaluated for proof of productivity.

SORGHUM SAMPLING TECHNIQUE

Step 1 - Mark the starting corner of the field to be sampled with a large stake and attach a ribbon or flag to it.

Step 2 - Pace off predetermined sample point coordinates in a sequential fashion to determine individual sample locations.

Step 3 - After taking the last of the required paces to the first sampling point, place a stake immediately adjacent to the closest sorghum plant to the toe of your shoe. Measure ten (10) feet of the plant row starting at the first stake and placing a second stake at the ten (10) foot mark. Move to the next adjacent plant row, measure and stake a second ten (10) foot section in the same manner as the first row. One sample unit will equal two (10) ten foot sorghum row sections.

Step 4 - Clip all grain heads in Row 1 within the ten (10) foot segment of the sample unit.

Step 5 - Weight the clipped grain heads using a balance scale - obtain field weight to the nearest tenth (0.1) of a pound.

Step 6 - Clip the first five grain heads and the last five grain heads in Row 2 to be used for moisture determination.

Place any grain heads collected for moisture determination into sealed polyethylene bags. Mark the bags with the appropriate field number (as supplied by the mine operator), and sample identification number.

Step 7 - Measure on a perpendicular line from the plants in row one (1) to the plants in row five (5). Divide this measured distance by four (4) to determine the average row width.

Step 8 - Repeat Steps 3 through 7 for each additional random sampling point coordinate.

Step 9 - Send or deliver to the Illinois Department of Agriculture any grain sample collected for moisture content analysis. (Note: If any single sample requires more than one bag, additional bags should be identified sequentially such as 1A, 1B, 1C).

The following method will be used for determination of gross yield of sorghum samples. Gross yield is determined by deducting the adjustment for moisture content of the threshed grain from the harvest weight. Moisture content of the grain samples will be made by lab analysis.

Gross Yield = Harvest Weight adjusted for moisture content.

Included below for reference is the Gross Yield formula and an explanation of its components.

$$\text{Gross Yield}_{\text{bu/ac}} = \frac{A \times B \times C}{D} \;/\; E \times 56 \text{ lbs/bu}$$

Where: A = Field weight of grain heads of sorghum from ten (10) feet of row x 2 (2 rows x 10 feet);

B = Weight of threshed grain at time of moisture test;

C = Percent moisture in grain corrected to 13.0%;

$$= 1.0 - \frac{\text{(Moisture content of threshed grain)}}{100} \;/0.870$$

D = Weight of grain seeds used for moisture determination;

E = Row factor
Area or percent of Acre Sampled with 20 feet of Row (2 rows x 10 feet)

28"	= .001070
30"	= .001148
36"	= .001377
38"	= .001455
40"	= .001529

and .870 = The standard moisture content conversion factor of sorghum per bushel (1.0 -.130)

MIXED HAY SAMPLING TECHNIQUE

Step 1 - Mark the starting corner of the field to be sampled with a large stake and attach a ribbon or flag to it.

Step 2 - Pace off predetermined sample point coordinate in a sequential fashion to determine individual sample locations.

Step 3 - After taking the last of the required paces to the first sampling point, lay down a sampling frame perpendicular to the toe of your shoe, where applicable, crossing crop rows at a right angle. Mark the two ends of the sampling frame with stakes just inside the 3 feet sampling tines. Continue to lay out the sample area in the direction of travel from where the last pace was counted. Rotate the sampling frame so that it is perpendicular to one corner of the stake (previously marked) and at a right angle to the original frame position. Repeat this procedure to lay out the other two sides of the sampling square using the opposite corner of the original frame position to locate the other two sides. In all cases, the layout of the sample area shall be consistent for each randomly identified sample point.

Step 4 - Clip all hay stalks from within the square outlined by the sampling frame. The hay stalks should be uniformly clipped to an approximate height of two (2) inches above ground level.

Step 5 - Deposit all of the collected hay sample into a suitable sample sack/container. Mark the sack/container with the appropriate field number (as supplied by the mine operator), and sample identification number. Secure the sample sack/container to prevent any sample loss. (Note: If the sample weight is too large for handling by lab personnel, the sample may be quartered until an adequate representative sample for moisture testing is obtained.)

Step 6 - Repeat Steps 3 and 4 for each additional random sampling point coordinate.

Step 7 - Send or deliver to the Illinois Department of Agriculture any hay sample collected for moisture analysis. (Note: If any single sample requires more than one bag, additional bags should be identified sequentially such as 1A, 1B, 1C).

* If a field moisture meter is used, steps 5 and 7 shall be eliminated and the following explanations for items A and D will be substituted.

A. Dry matter weight = harvest weight - percent moisture content determined by field moisture tests.

D. Percent moisture in hay at time of harvest determined by field moisture test.

The following method will be used for determination of gross yield of mixed hay samples. Gross yield is determined by deducting the adjustment for moisture content of the mixed hay sample from the harvest weight. Moisture content of mixed hay samples will be determined by lab analysis.

Gross Yield = Harvest weight adjusted for moisture content

$$\text{Gross yield (Tons/Acre)} = \left(\frac{A}{C} \times \frac{1}{B \times F}\right)$$

Where: A = Oven dry weight of harvested hay.
B = Sample size (FT2) ÷ 43560 FT2/acre.
C = Conversion factor from lbs harvested to tons (i.e. 1 ton = 2000 lbs)
D = Percent moisture in hay at time of harvest
= $\frac{\text{Wet wt - oven dry wt.}}{\text{Oven dry wt.}} \times 100 = \%\ H_2O$
E = Approximate % moisture in mixed baled hay = 15%
F = D/E = $\frac{100\% - \%\ H_2O \text{ in Hay at Time of Harvest}}{15\%}$

The net yield determinations for each sample will be averaged together to obtain a yield figure for the entire field being evaluated for proof of productivity. The annual harvest will be determined by the cumulative yields of each cutting.

SPECIAL PROBLEMS IN SAMPLE LAYOUT

1. It is possible for a sample grid coordinate to fall on areas within the field boundary which were not planted to crops (i.e., grass waterway, roadway, etc.) When this situation occurs, stop the pace count at the start of such an area and resume the count on the other side of the area.

2. If a blank area is crossed which was planted to crops, the pace count should be continued through this area. Usually such areas are due to poor germination, insects, standing water, etc. (if the sample area falls in this planted area which is blank, then a zero yield is established).

3. If a sample coordinate falls partly in a blank area which was not planted for harvest, move the sample area ahead until it is wholly on acreage planted to the crop being sampled. The sample point should begin one pace from the edge of the blank area.

(Source: Added at 10 Ill. Reg. , effective , 1986)

Section 1816.EXHIBIT A COUNTY CROP YIELDS BY SOIL MAPPING UNIT

Column A Soil Mapping Unit	Column B County Cropped Acreage	Column C % of total acres cropped	Column D* Grain Acres by Soil Mapping Unit	Column E Adjusted High Mtg. Yield	Column F High Mgt. Production	Column G Yield by (Bu/A) (T/A)
Total	Total	Total			Total	

County Acres in Corn _____
Soybeans _____
Wheat _____
Oats _____
Mixed Hay _____
* Total Acres _____

(Source: Added at 10 Ill. Reg. , effective , 1986)

Section 1816.TABLE A SUBSOIL ADJUSTMENTS

Percentage Adjustments in Yields Under High Management for Common Slope Groups and Various Erosion Conditions

Favorable Subsoil

Slope Group*	(1) Uneroded	(2) Moderate Erosion	(3) Severe Erosion
		%	
A (0 - 2%)	100	97	90
B (2 - 5%)	99	96	89
C (5 - 10%)	98	95	88
D (10 - 15%)	95	92	85
E (15 - 20%)	90	87	80
F (20 - 25%)	80	77	70
G (25% +)	71	68	61

Unfavorable Subsoil

Slope Group*	(1) Uneroded	(2) Moderate Erosion	(3) Severe Erosion
		%	
A (0 - 2%)	100	95	80
B (2 - 5%)	99	94	79
C (5 - 10%)	97	92	77
D (10 - 15%)	93	89	73
E (15 - 20%)	88	83	68
F (20 - 25%)	78	73	58
G (25% +)	69	64	49

*The slope range represents a lower upper limit. For example, a slope of B (2-5%) represents an overlap of A at 2%. This overlap is interpreted to mean A slope is 0 to 2% and B slope is any fraction greater than 2% to 5%.

(Source: Added at 10 Ill. Reg. , effective , 1986)

Section 1816.TABLE B SOIL VARIANCE CODES

Soil Variance Codes

Variance Code	Meaning
1	Soil Wet (Reduce yield by 30%)
2	Urbanized Soil (Reduce yield to zero)
3	Flooded Soil (Reduce Yield by 50%)
4	Ponded Soil (Yield Reduction Varies by County)
5	Sink Hole (Yield Reduction Varies by County)
6	Soil Variant (Yield Reduction Varies by County)
7	Mine Dump (Reduce yield to zero)
8	Quarry (Reduce yeild to zero)
9	Sewage Lagoon (Reduce yield to zero)
10	Water (Reduce yield to zero)
11	Borrow Pit (Reduce yield to zero)
12	Strip Mine (Reduce yeild to zero)
13	Sand Quarry/Pits (Reduce yield to zero)
14	Gravel Pit (Reduce yield to zero)
15	Made Land (Reduce yield to zero)
16	Miscellaneous non-cropped (Reduce yield to zero)

(Source: Added at 10 Ill. Reg. , effective , 1986)

Section 1816.TABLE C COUNTY NUMBERING SYSTEM

Assigned County Numbers for the Agricultural Land Productivity Formula

County Number	County	County Number	County	County Number	County
1	Adams	69	Hardin	137	Morgan
3	Alexander	71	Henderson	139	Moultrie
5	Bond	73	Henry	141	Ogle
7	Boone	75	Iroquois	143	Peoria
9	Brown	77	Jackson	145	Perry
11	Bureau	79	Jasper	147	Piatt
13	Calhoun	81	Jefferson	149	Pike
15	Carroll	83	Jersey	151	Pope
17	Cass	85	Jo Daviess	153	Pulaski
19	Champaign	87	Johnson	155	Putnam
21	Christian	89	Kane	157	Randolph
23	Clark	91	Kankakee	159	Richland
25	Clay	93	Kendall	161	Rock Island
27	Clinton	95	Knox	163	St. Clair
29	Coles	97	Lake	165	Saline
31	Cook	99	LaSalle	167	Sangamon
33	Crawford	101	Lawrence	169	Schuyler
35	Cumberland	103	Lee	171	Scott
37	DeKalb	105	Livingston	173	Shelby
39	DeWitt	107	Logan	175	Stark
41	Douglas	109	McDonough	177	Stephenson
43	DuPage	111	McHenry	179	Tazewell
45	Edgar	113	McLean	181	Union
47	Edwards	115	Macon	183	Vermilion
49	Effingham	117	Macoupin	185	Wabash
51	Fayette	119	Madison	187	Warren
53	Ford	121	Marion	189	Washington
55	Franklin	123	Marshall	191	Wayne
57	Fulton	125	Mason	193	White

County Number	County	County Number	County	County Number	County
59	Gallatin	127	Massac	195	Whiteside
61	Greene	129	Menard	197	Will
63	Grundy	131	Mercer	199	Williamson
65	Hamilton	133	Monroe	201	Winnebago
67	Hancock	135	Montgomery	203	Woodford

(Source: Added at 10 Ill. Reg. , effective , 1986)

Section 1816.TABLE D SAMPLE POINTS PER CROP ACRES

CORN

Size of Bond Release Field	Minimum Number Of Samples
4 - 39 acres	8
40 - 279 acres	12
280 - 639 acres	16
640 acres or more	28

SOYBEANS

Size of Bond Release Field	Minimum Number Of Samples
4 - 39 acres	10
40 - 279 acres	12
280 - 639 acres	16
640 acres or more	26

WHEAT - OATS

Size of Bond Release of Field	Minimum Number Of Samples
4 - 39 acres	6
40 - 279 acres	8
280 - 639 acres	10
640 acres or more	14

SORGHUM

Size of Bond Release Field	Minimum Number Of Samples
4 - 39 acres	10
40 - 279 acres	16
280 - 639 acres	28
640 acres or more	40

MIXED HAY

Size of Bond Release Field	Minimum Number Of Samples
4 - 39 acres	5
40 - 279 acres	10
280 - 639 acres	20

640 acres or more requires one (1) sample for each additional 35 acres

(Source: Added at 10 Ill. Reg. , effective , 1986)