

Chapter 7

Cropping Plan

7.1 Understanding a Cropping Plan

A cropping plan is a total land site management plan that clearly shows how the hauler or his designated land manager will use the land site for the application of septage waste during twelve consecutive months. Management operations such as tillage (disking, injection), septage waste application, liming, fertilizer application, planting, weed control, crop harvesting and other practices on MDEQ approved land sites during a 365-day period are part of the cropping plan.

7.2 Cropping Plan (Land Site Management) Design

The cropping plan design is a layout of information relevant to the land application and management of septage waste.

A comprehensive cropping plan at each land site should include, at the minimum, the following information:

- ❖ Septage business identification.
- ❖ Land site and field identification.
- ❖ Cropping year.
- ❖ Acreage of the field that will be used.
- ❖ Phosphorus level (soil fertility test).
- ❖ Agronomic application rates.
- ❖ Type of crop following septage application and previous crop.
- ❖ Crop planting and harvest dates.
- ❖ Beginning and end period of septage waste application.
- ❖ Crop Use (animal feed or other).
- ❖ Dominant soil class (e. g., sandy loam).
- ❖ Erosion/surface runoff control plan.
- ❖ Pathogen and vector attraction reduction methods.
- ❖ Septage waste application method.
- ❖ Applicator vehicle calibration information.
- ❖ Winter disposal plan.
- ❖ Soil sampling date.
- ❖ Other sources of nutrients apart from septage waste that will be applied.

7.3 Explanation of the Components of a Comprehensive Cropping Plan

The Cropping Plan format and an example of a cropping plan are given in Appendices A and B. See Note 2 at the end of this chapter. Refer to the appendices as you review the sections that follow.

7.3.1 Septage Business Identification

Indicate name of the business and the septage waste license number.

7.3.2 Land Application Site Identification

Identify the location of the land site that is approved for the application of septage waste. If there is no assigned address, use an address that is closest to the location. Indicate clearly the fields within the land site and the site identification number (ID #). Include other identifiers such as Township and Range designation and Section number, and portion of section where site is located.

7.3.3 Cropping Year

Identify the calendar year of the proposed cropping plan.

7.3.4 Acreage: Available Acreage – How to Determine the Acreage

Indicate the proposed number of acres that will be used for the application of septage waste during the cropping year. This number may not be the same as the number of acres owned by the land owner. The acreage in the cropping plan may also not be the same as the number of acres available for you to use.

It simply means the number of acres you intend to use during a given cropping year.

How to Determine the Acreage:

Measure the Length of the Field (in feet) = 900 ft

Measure the Width of the Field (feet) = 484 ft

Multiply the Length and Width = 900 ft x 484 ft = 435,600 sq ft

1 Acre = 43,560 sq ft

Number of acres = $\frac{435,600 \text{ sq ft}}{43,560 \text{ sq ft}} = 10 \text{ Acres}$

7.3.5 Soil Sampling Date - Soil Phosphorus Level

Indicate the date(s) when soil samples were collected from the site and submitted to the soil testing laboratory. Indicate the current soil phosphorus test level. You can obtain this information from your soil test report. For proper conversion of parts per million (ppm) to pounds per acre (lb/ac) see Chapter 5, Section 5.4.3 of this manual. The soil test report will also show the soil sample analysis date. Soil samples should be within one year of the date of septage waste application. See Chapter 13, 13.2.1 for time of soil sampling.

7.3.6 Agronomic Application Rates

The AAR is the maximum amount of septage waste that may be land applied in a given year to provide the essential nutrients for a crop. The AAR is designed for the current crop, if septage waste is to be land applied over existing crop such as hay crop, or for the next crop that will follow the septage waste application in the same field. Enter the AAR value you obtained using guidance from Chapter 6.

7.3.7 Crops

Indicate the previous crop grown before septage waste application and the crop that will follow after septage waste application on the same field. Example: See Appendix B, Site ID #1, Fields A and B.

7.3.8 Crop Planting and Harvest Date

Using the months at the top of the cropping plan table format, indicate when planting of a crop may begin and when harvesting may commence. The dates may vary depending on the crop or what the land manager may do.

7.3.9 Septage Waste Application

Based on the months of the year in the cropping plan form, show when septage application may begin and when it may end. If septage waste will not be land applied to a particular field within the cropping year, indicate it on the cropping plan. See example in Appendix B.

7.3.10 Crop Use

Indicate how the harvested crop(s) will be used. Go to Chapter 16 for guidance as to how crops harvested from land sites receiving septage waste may be used. Chapter 16 covers crop and grazing restrictions. If the crop planted at the site is only for erosion and surface runoff control or maintenance grass cover and may or may not be plowed under, indicate this clearly in the cropping plan.

7.3.11 Soil Group Class

Indicate the primary soil group of the land site. Go to Chapter 4 for guidance.

7.3.12 Erosion and Surface Runoff Control Methods

The cropping plan submitted should indicate how erosion and runoff may be controlled at the land site. It is important for the septage waste that is land applied to remain where it was applied and not flow over land to neighboring parcels or surface waters due to wet weather events such as rain storms and melting snow. Indicate the erosion and runoff method. Go to Chapter 8 for various erosion and runoff control methods and indicate all that may apply. You may add an erosion and runoff method that is not listed. In order to keep the septage waste in the field and not move down the slope, it is important to keep in mind the calibrated rate of application as stated in Chapter 10, the slope of the field and type of soil (soil textural class). Furthermore, the AAR is the amount of septage waste that is meant to spread over the field over a period of time within the year.

7.3.13 Pathogen and Vector Attraction Reduction Methods

Indicate the method(s) you intend to use to reduce pathogen and vector attraction reduction. Go to Chapters 11 and 16 for guidance.

7.3.14 Septage Waste Application Method

Indicate whether the method of septage waste application is by surface application or injection into the soil or both depending on the type of your operation and time of the year.

7.3.15 Applicator Vehicle Calibration

Indicate the rate of septage waste application from the applicator vehicle in a single pass per acre. Go to Chapter 10 for guidance.

7.3.16 Winter Disposal Plan

Indicate the winter plan for disposal of septage waste. If you intend to land apply during the winter months when the soil is not frozen, go to Chapter 9 for guidance.

7.3.17 Other Sources of Nutrients Apart from Septage Waste that will be Applied

If other sources of nutrients such as chemical fertilizers and animal manure are used in the same cropping year when septage waste will be applied, state it clearly in the cropping plan. Take the amount of the nutrients, for example nitrogen into consideration when calculating the AAR. See Chapter 6 about calculations.

7.4 Planting, Harvesting, Field Rotation, and Septage Waste Application Patterns

The cropping plan shows land management practices starting from January to December that matches the calendar year. See the cropping plan form in Appendix A. **This is the plan to use.** Any hauler who wants to use a different plan may contact MDEQ. Cropping plans different from the recommended plan will be handled on a case by case basis.

Planting, harvesting, and septage waste application patterns within a calendar year will vary from hauler to hauler. For instance, at one land site Field A may be under crops with little or no septage waste application. On the other hand, Field B at the same land site may be used mainly for septage waste application during the year. The following year the process reverses. The form allows you to indicate the previous crop for nutrient credit, current crop, and the crop that will follow septage waste application, if applicable. Do not leave any month of the year unaccounted for regarding the use of the land.

7.5 Cropping Plan for Reserve Land Site (Site or Field Not In Use)

There are some land sites that are considered "reserve." This means that the hauler does not intend to use the land for septage waste application. They may leave it fallow, allow grass vegetation or grow crops but septage waste will not be applied. They want to keep it as reserve land until they are ready to use it at a later time. This is permissible. However, the hauler is still expected to submit a cropping plan

form identifying the land site or field and clearly indicate “Reserve Land Site” or “No Septage Waste Application until Further Notice.” An annual soil test is not required for such land sites or fields.

Note 1: It is the responsibility of the septage waste firm owner to communicate with the land manager if that person is different from the septage business owner. The MDEQ deals directly with the licensed septage waste business owner and not necessarily the land owner or other persons who are not licensed by the department.

Note 2: This is the cropping plan to be submitted by the licensee showing how the MDEQ authorized land site will be used for the land application of septage waste. This is a proposed plan. The plan may change. If the entire cropping plan or some parts of the plan changes after submitting it to the MDEQ, send a revised plan within two weeks of the change. This is especially critical when growing crops for human consumption. See Chapter 16 if growing crops for human consumption.