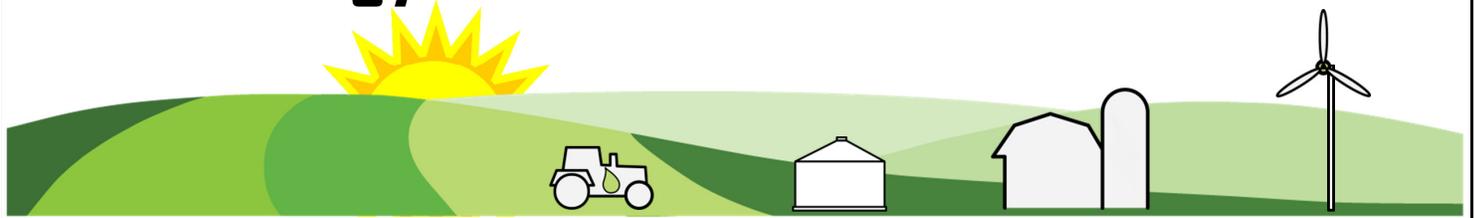


Farm Energy IQ



Farm Pellet Production Module

LEARNING OBJECTIVES

Participants in the educator training session will understand how to utilize biomass feedstock to manufacture biomass fuel pellets. This includes the ability to:

1. Describe common feedstocks for pellet production and how they are grown.
2. Explain the theory of how a pelletizer works.
3. Describe the steps required to turn biomass into a densified pellet.
4. Identify common problems in the pelleting process, and how to overcome them.
5. Identify key procedures to ensure safe use of pelleting equipment.
6. List the costs involved in producing pellets and their relative contribution to the overall cost of the process.
6. Discuss the markets for biomass pellets.
7. Prepare a small sample of ground biomass and manufacture pellets from it.

PRESENTATION FILE

OnFarmBiomassPelletProduction_ASPTTraining.pptx

Presentation Outline:

05 min Introduction - pellet production

Introduce self, purpose of presentation; give brief overview of pellet industry and opportunity for on-farm production

10 min Pellet Theory

Explain the densification process, and the role of lignin in forming a densified pellet.

10 min Pelletizer Equipment

Grinders for size reduction, dryers, steam injection, flat plate and ring die pelletizers, cooling racks.

10 min The Pelleting Process

Outline how feedstock is harvested, stored, ground, conditioned, and fed into the pelletizer. Discuss the role of pre-mixes in the process. Review die tightness, loading methodology, drying and packaging.

10 min Pellet Uses and Markets

Review potential markets including heat, sorbents, bedding, mushroom substrate, others. Discuss the need for developing your own market.

05 min Pellet manufacture demonstration video

ASP ACTIVITY DESCRIPTION

PRIMARY ACTIVITY

ASPs will work together to make a small batch of pellets using a small pellet mill.

This activity is a natural follow-on to the module presentation. Participants will need access to a small pelletizer machine and appropriate safety gear (safety glasses and no loose clothing that could get caught in the machine).

The exercise should take about 15 minutes.

- hand out the accompanying sheet titled, "Running a Small Scale Pelletizer"
- read the instructions to ensure that everyone understands what is being asked
- discuss safety procedures and precautions for using the equipment
- lead the preparation of feedstock, operation of the pelletizer, and collection of the final product.

ALTERNATE ACTIVITY

Often, equipment and facilities will not be available to do a hands-on pellet production activity. If this is the case, use this alternate activity, in which ASPs will carry out a cost estimating exercise for an on-farm biomass pelleting operation, using the calculation tool included with this module.

- Make sure that all attendees bring a computer with a spreadsheet, or are provided with one
- Hand out the activity sheet
- Help them as they work through the exercise.

ADDITIONAL MATERIALS

In addition to the ASP Training slide set and ASP training activity sheet(s), the following materials are available as part of the module:

- Spreadsheet file for alternate ASP training activity – titled “OnFarmPelletCosts”
- Farmer Training Description – titled “Pellet Module Description for Farmer Training”
- Slide File for Farmer Training – titled “OnFarmBiomassPelletProduction_FarmerPres”
- Fact Sheet for Farmer Training – titled “Fact Sheet On Farm Production of Pellets”
- Case Study for Farmer Training – titled “Case Study Pellet Production at Woodcrest Farm”

This project supported by the Northeast Sustainable Agriculture Research and Education (SARE) program. SARE is a program of the National Institute of Food and Agriculture, U.S. Department of Agriculture. Significant efforts have been made to ensure the accuracy of the material in this report, but errors do occasionally occur, and variations in system performance are to be expected from location to location and from year to year.

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