A FORAGE DRYER FOR EXPERIMENTAL RESEARCH\(^1\)

There are many types of commercial dryers on the market at the present time. Some of these are engineered for batch drying of seed crops such as small grain, corn, and soybeans, while others are designed for the continuous dehydration of forage crops for hay or pellets. Even though these dryers range widely in costs, types, and sizes, it is difficult to obtain equipment for the uniform drying of small samples of forages such as those used for forage crops research.

The purpose of this report is to describe the necessary construction, cost, and efficiency of a dryer developed for drying samples of forage obtained from experimental plots. Two dryers, one at Experiment and another at Blairsville, are in operation and giving satisfactory service.

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Description and Operation

This is a permanent-type installation with hot air that can be recirculated or discharged heated by gas or oil burners, but any regulated heat source may be used. The dryer may be operated with unheated air. Whether or not the air should be recirculated depends on the relative humidity and the amount of moisture in the forage.

The installation, as shown in Figure 1, consists of two main units: (1) the combustion chamber and heat exchanger, and (2) the drying bins. These are joined together by delivery and return air ducts. The operation consists simply of blowing heated air around the bags of green forage from top to bottom until enough of the moisture is removed. Since drying consists of transferring moisture from the material to the atmosphere, the size of sample, plant species, stage of maturity, and amount of moisture present determine the drying time required. Caramelization often occurs when