Figure 1—View of complete dryer.

Figure 2—Full and empty bins with hanging hooks and pipes.

over 180° F. are used, so it is important to use lower temperatures and dry for longer periods of time. Air enters at the top and leaves at the bottom to provide uniformity of drying.

The procedure used in drying experimental samples is to place the freshly cut green forage in loose-net bags. These bags are then hung on hooks in one of the four compartments of the dryer, as shown in Figure 2. On the average, a 4-pound sample of green forage placed in the dryer at 140° F. dries in 48 hours.

Each drying bin contains an upper and lower tier of 8 removable pipes capable of accommodating 4 average-size bags, making a total of 64 bags per bin.

The original drying unit at Experiment is 16 feet long, 8 feet wide, and 10 feet high. (The Blairsville dryer is 10 feet wide.) Adaptation can be easily made to fit the needs of the builder. The basic wooden construction consists of 2x4" framing and plywood sheeting. The duct work also is constructed of interior plywood. The dimensions of each of the 4 bins are 4x8x9 feet with a 1-foot deep hot air duct at the top and a 1-foot deep return air duct below the concrete floor level (waterproof).

The duct into the top of the drying area consists of 2x8-foot pieces of interior plywood with matching holes drilled 6 inches on center in the lower baffle is fixed in place while the upper baffle slides over it, thus regulating the amount of air entering each bin by closing or partially closing the matching holes. This arrangement provides for uniform air distribution.

A squirrel cage blower delivers air to the bins at thermostatically controlled temperatures. The heating system is equipped with automatic safety controls which include a high limit switch and an automatic pilot. The blower is driven by a 1-hp motor and has a capacity of 3,000 cubic feet per minute.

The headers for the heat exchanger are made of 1/2" steel plates. Ten 3-inch boiler flues in a staggered arrangement are welded between the steel plates. Three baffles are placed on alternate sides of the heat exchanger for efficient heating of the air.

The total cost of the entire installation, with the exception of labor, was approximately $1500.00.

Results on Efficiency of Dryer

In forage crops research it is necessary that all forage samples be dried uniformly and completely so that errors will be at a minimum.

To test the drying uniformity and efficiency of the installation, each bin was filled as described earlier, with 64 bags containing 2 pounds of fresh fescue forage. A randomized block design, replicated four times, was used. After drying the samples at 140° F. for 36 hours, the dry weights of the forage were determined and the results analyzed statistically.

Results show no statistically significant differences between the weight of the forage due to location within the bin or between bins, indicating uniform drying and the absence of hot or cold areas in the bins. The probability of an error due to conditions in the dryer was not significant at the 5% level and the co-efficient of variability was 10.6%. The weight of the dry fescue forage was 1.2 ± .2 pounds.—J. P. NEWTON, J. G. CRAIGMILES, and J. W. DOBSON, Jr., Assistant Agronomist; Head, Engineering Department; Head, Forage Crops Section; Georgia Experiment Station; and Assistant Agronomist, Georgia Mountain Experiment Station, Blairsville, Ga., respectively.

A METHOD FOR MEASURING SOD RESERVES

Management practices imposed upon perennial sod crops must always be evaluated in terms of their effect upon the continued growth of the sod. It is not surprising, therefore, that plant scientists have tried to measure this phenomenon with many different methods, ranging from direct measurements of stand and regrowth in the field to the chemical analyses of carefully separated plant organs such as roots, rhizomes, stolons, crowns, etc. Measurements of chemical constituents (usually some of the carbohydrate fractions) are tedious and costly and are useful only insofar as they correlate with the ability of the plant remnant to resume growth.

The method described herein, a refinement of one used