
Intercropping, for More Forage and Less Erosion

One way to increase forage production in alfalfa fields is to interseed sweet sorghum or a sorghum/Sudangrass hybrid. In a recently completed 5-year study, the interseeded nonlegume forages produced bountifully in alfalfa while minimizing costs and conserving soil—without commercial nitrogen fertilizer.

Dwayne R. Buxton, an ARS plant physiologist at Ames, Iowa, along with Iowa State University agronomist I.C. Anderson and economist Arne Hallam, conducted the study in two settings.

One was on high-value land in central Iowa where farmers normally plant row crops, and the other was on lower value, sloping land in southern Iowa.

Interseeding increased forage yields 45 percent near Ames and 28 percent on the less valuable land near Chariton, Iowa.

“With that much extra yield, we calculated a farmer could break even with production costs when the forage’s value was \$47.70 per ton at the central Iowa site or \$50.16 in southern Iowa,” Buxton said.

To break even growing pure stands of alfalfa, the forage would have to be valued at \$63.46 and \$71.03, respectively.

Sorghum, grown by itself as an annual row crop, may produce a high forage yield but fail to protect soil from erosion as well as cool-season crops such as alfalfa or reed canarygrass do.

On the sloping soil near Chariton, annual soil erosion loss for cultivated, row-cropped sorghum was more than 14 tons per acre. Intercropping the sorghum held erosion loss to less than 1 ton.

But moisture in the soil must be adequate for sorghum to be grown successfully in established stands of alfalfa or reed canarygrass, Buxton says.

Besides having adequate moisture, the researchers attributed their success also to use of a power slot mulcher to prepare a narrow sorghum seedbed and to apply a band of herbicide to control plant competition. Successful stands were not achieved without the use of the mulcher and herbicide.—By **Ben Hardin**, ARS.

Dwayne R. Buxton is in the USDA-ARS Field Crops Research Unit, 1575 Agronomy Bldg., Iowa State University, Ames, IA 50011; phone (515) 294-9654, fax (515) 294-9359. ◆