



THE EXTENSION SPECIALIST points to a sample of clean sorghum grain (left) ← and to a sample of trashy seed, resulting from maladjustment of the combine.

## Combining Sorghum For Maximum Seed And Minimum Trash

By Marshall M. Machado

The purpose of any harvesting and threshing operation is to recover the maximum amount of seed, free from foreign material, with a minimum of seed loss and seed damage. Proper combine adjustments affect both the quantity and quality of harvested grain.

Adjustments affecting sorghum seed loss and trash content are (1) cutter bar and reel settings, (2) cylinder speed, (3) cylinder-concave clearances, and (4) sieve adjustments.

### Checking Seed Losses

Seed losses can occur at the cutter bar, cylinder, straw walkers and sieves. Losses at the cutter bar result from heads of grain falling to the ground after being cut by the knife and from grain being knocked to the ground by an improperly adjusted reel. Unthreshed heads of sorghum carried over the rear of the straw walkers are considered cylinder losses. Overloading the straw walkers may also cause loose grain to be discharged with the straw.

Overthreshing or overloading creates a heavy mat of leaves, stalks and grain over the chaffer and sieve, causing grain to be carried out the rear of the combine. Excessive trash reaches the grain bin when the combine operator attempts to retrieve all of the grain by opening the chaffer and sieves too wide.

The operator should check each of the potential seed loss areas frequently and observe the amount of trash reaching the grain bin. By making adjustments of the combine and controlling the feeding rate, the operator can harvest the maximum

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By Robert E. Dennis

Arizona growers have a reputation for producing sorghum grain of high quality. Kernels are plump and full, and foreign material is usually at a minimum. Arizona sorghum grain takes roller crushing treatment well and, when free from foreign material, is excellent for use in the new cooked rations for livestock.

The yield per acre of sorghum grain in the state has more than doubled in the last 20 years. The acreage used for sorghum grain tripled during the same period.

Arizona growers should be congratulated for the quality product they have been producing, but in recent years 10 to 15 percent of the total harvested sorghum grain has contained excessive stalks and leaves. This trash is creating a marketing problem for Arizona-grown sorghum.

Sorghum grain with excessive stalks and leaves does not store well, and is unsatisfactory for use in cooked rations. Trash accumulates in the storage pile or bin, forming barriers to the free movement of air. Moisture collects around the trash, causing grain to mold. Cooked grain with excessive amounts of trash sours after processing.

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amount of grain with a minimum of trash.

### Adjusting the Combine

Cutter bar height is usually determined by the density of stand. The cutter bar should be set low for thin stands of sorghum and relatively high in dense stands. Setting the cutter bar too low in dense stands overloads the machine. More trash will be found in the grain bin and losses of grain over the chaffer and sieve may result from excess straw.

Peripheral speed of the reel should be 1.0 to 1.2 times the forward speed of the machine to prevent shattering of the grain. Raise the reel and/or fill the area between the center of the reel and the reel slat with canvas or a similar material when the reel is throwing cut grain.

Rasp bar, angle bar, or spike tooth cylinders may be used. Cylinder peripheral speed should be 4000 to 5000 feet per minute. This will be about 700 to 875 rpm when using a 22-inch diameter cylinder. Check the operator's manual since the rpm required for the given peripheral speed will vary with cylinder diameter. Use the faster speeds if many unthreshed heads of grain are found. Excessive cylinder speed causes over threshing and increases damage to seed.

Cylinder-concave clearances should be approximately  $\frac{1}{2}$  inch in front and  $\frac{1}{4}$  inch at the rear. Decreasing the clearances may be necessary if many unthreshed heads are found. However, decreasing the clearance has the same effect as overloading the machine since the sorghum straw is badly broken and can plug the chaffer and sieves. Increasing the cylinder

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**GROWERS SHOULD CAUTION operators against excessive speed of the combine which, in many cases, is cause of overloading and a poor threshing operation.**

