and superior to machine-harvested fruit from the first harvest, May 22.

Some internal damage to the fruit as a result of mechanical harvesting was observed after removal of the SO_2. Placing the cherries in brine immediately after harvest reduced this damage considerably. It seems feasible to expect that the fruit could be conveyed directly from the catching frame to bins placed in the orchard. Brine could be added to the bins immediately before or after harvest. The bins could be transported to the brining facility at the convenience of the grower or processor and either stored in these containers or transferred to larger holding tanks.

EVALUATION OF MECHANICALLY HARVESTED ROYAL ANN CHERRIES HELD IN BRINE

Eqiup-ment	Handling method[1]	With stems %	Combi-nation #1 & #2 grade[2]	Culls
		Harvested May 22		
Best	Dry	73.3	77.7	1.1
	Wet	78.0	73.5	1.3
Hand	Dry	96.8	93.0	0.5
	Wet	99.0	91.3	0.3
		Harvested May 29		
Best	Wet	59.2	86.7	0.8
Goodwin	Dry	77.6	87.6	0.3
	Wet	73.8	89.3	0.1
Hand	Dry	97.1	80.6	0.7
	Wet	98.8	83.8	0.7
		Harvested June 5		
Best	Dry	28.5	68.1	0.9
	Wet	21.4	74.1	0.8
Hand	Wet	71.8	74.4	0.9

[1] Dry—left in field boxes 4–6 hours after harvest, then placed in brine. Wet—placed in brine immediately after harvest.

[2] Oregon standards for Sulfured Cherries, Oregon State Dept. of Agriculture, Salem, Oregon, May 20, 1954.

Davis tests

The results of the tests conducted at Davis showed that there was no advantage in the use of 4-thianaphtheneacetic acid in loosening cherries on the tree.

High frequencies (2,000 cpm) and a short stroke (3/8 inch) were effective for removal on young trees—or erect branches on older trees similar in structure to that prevalent in younger trees. This combination was not effective on long or drooping branches. To obtain removal on this type structure, lower frequency (700 cpm or less) and a longer stroke (1½ inch) were required. Possibly even a longer stroke would increase removal further.

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D. C. SUMNER · J. R. GOSS

Sideoats Grama and

SEED PRODUCTION

Trials conducted by the Department of Agronomy at Davis indicate the possibility of producing successful seed crops of several perennial grasses adapted to the Great Plains areas. Species showing the most promise include sideoats grama, weeping lovegrass, sand lovegrass, Boer lovegrass, and Lehmann lovegrass.

SIDEOATS GRAMA is a native of the Great Plains from Canada to Mexico and the lovegrasses, with the exception of sand lovegrass, are introductions from Africa. All have been found useful in certain parts of the Great Plains for reseeding range lands but the markets are not large and it would be easy to produce more than could be used. Therefore, growers interested in producing seed are urged to work through local marketing establishments or make prior arrangements with retail outlets in the area of use.

Some of the more prominent varieties of sideoats grama and areas of adaptation are as follows: Butte and Trailway, for Nebraska; El Reno, for Kansas; Coronado and Tucson, for Oklahoma and the Southwest. Sand lovegrass varieties include: A-11527 for New Mexico and Neb. 27, for Nebraska. The Boer lovegrass is A-84, for Arizona. The Lehmann lovegrass is A-68, for Arizona. The weeping lovegrass has no named improved varieties, to date. Sources of seed, potential market demands, and retail prices may be obtained by writing to Agricultural Experiment Stations of Land Grant Colleges in the states indicated.

Moisture needed

Though these grasses are drought resistant they are adapted to areas receiving summer rain, and when grown for seed must have adequate moisture to produce good seed crops. The effective root distribution is relatively shallow, especially with sideoats grama, and frequent irrigations are necessary.

Coronado and Tucson strains of sideoats grama can produce two seed crops each year—the first maturing in June or July, the second in September or October. When grown in California for seed, experience indicates that the first crop is usually light and may not be economical to harvest. The first crop seed yield is dependent largely upon climate in the area where it is grown. Uneconomical first

Lovegrass

IN CALIFORNIA

crop seed yields have been associated with hot weather during flowering.

Sand lovegrass produces one crop during the growing season and is usually harvested in late September or early October. The other lovegrasses can produce two crops per year. The first is usually the best and is harvested in early summer. The second is harvested in September or October, but may not yield much seed. The grower should try to produce both seed crops of those grasses capable of maturing two seed crops each season until it is proven that one or the other is not profitable. After each seed crop, whether harvested or not, all growth should be removed before fertilizer is applied and irrigation continued.

Fertilizer needs

Each seed crop uses approximately 150 pounds of nitrogen per acre. More efficient use of this nitrogen can be obtained if half of this amount is applied early—just before the crop starts to grow—and the remainder applied three to four weeks later or before mechanical damage is incurred by ground application.

The extensive fibrous root system of these grasses is beneficial to heavy tight soils. Water penetration is greatly improved with each succeeding crop year. Cultivations should be minimal and shallow to prevent excessive root pruning during the development of the seed crop. Once new growth starts, mowing or clipping to control weeds will reduce seed yields. Seed yields of sand lovegrass were reduced 50 per cent when mowed in early June. Chemical weed control is helpful but its use on seedling stands can result in extensive damage.

In time, stands become more or less sod bound and yields are greatly reduced. After the third crop year stands may need renovating by discing across the rows. The lovegrasses are benefited most by stand renovation.

Harvest timing

Sideoats grama is ready to harvest when the caryopses in the lower seed units are in the soft dough stage. When most of the seeds of the lovegrass in the lower panicle branches have started to turn a dark color, the crop is ready to harvest. Before this stage is reached some seeds in the top portion of the panicle will already be shattered. If left to mature beyond this stage, shatter losses will be heavy. Shatter losses can be reduced by carefully windrowing the crop with a self propelled swather.

After curing in the windrow, threshing can be done using a combine equipped with a pick-up attachment. It is recommended that the belt type pick-up be used. A seed crop of sideoats grama will produce roughly two tons of straw per acre and the lovegrass about one and one-half tons. With this amount of material going through the combine, careful control of the feeding rate is necessary to do a good job of threshing and separation of the seed from the straw. The combine should pick up the windrow in the same direction to which it was swathed so that the heads will be picked up first. Heavy straw yields of the fine-stemmed grasses can readily slug the combine cylinder if the forward speed is not kept low.

Yields

Sideoats grama fields have yielded from 400 to 800 pounds per acre of seed with a pure-live-seed content of about 30 per cent. The low purity is a result of several factors. To avoid even small percentages of naked seed, the seed units should not be broken up during harvesting or cleaning. The harvested seed is light and bulky because some of the florets in the seed units are sterile and cannot be removed without hulling viable seed. Thus cleaning the harvester-run seed is a difficult job with little chance of greatly increasing the purity of the cleaned product.

The combine cylinder does an excellent job of threshing lovegrass seed with very little mechanical damage. The harvester-run seed can be easily cleaned to a high purity. Seed yields from trial plots at Davis ranged from 500 to 1,000 pounds of clean seed per acre.

The information presented here should be used as a supplement to Extension Service Circular 487, "Production of Grass Seed in California."

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SUGGESTED COMBINE SETTINGS FOR SEED PRODUCTION OF SIDEOATS GRAMA AND LOVEGRASS

Species	Cylinder		Chaffer (any of the adjustable type)	Screen	Fan	Ground speed
	Speed[1]	Clearance[2]				
Sideoats grama	675–725 r.p.m 3880–4170 f.p.m	3/8" front 5/16" rear w/concave pan	1/2" open	Adj. clean grain screen 1/4" open	Min. speed; shutter closed with top half of remaining opening closed off	1/2–3/4 m.p.h.
Lovegrass	900–950 r.p.m. 5170–5470 f.p.m.	3/16" w/concave pan	1/2" open	1/10" round hole	ditto	ditto

[1] R.P.M. for a 22" diameter cylinder.

[2] For spike tooth cylinders use 1/2 to 3/4 overlap between cylinder and concave teeth. Use normal rice or barley concave teeth set up (the equivalent of 3 or 4 full rows of teeth).