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FIELD AND FORAGE CROP INVESTIGATIONS AT BEEVILLE

Progress Notes for the Beeville Station Field Day, June 23, 1950

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A system of livestock farming is the major objective of experimental work on the Beeville station. Many feed crops are tested and utilized in these experiments. Cash and soil-building crops are included to give a well-balanced farm program and to furnish information for non-livestock farmers. A preliminary report on yields of these crops at the station is given in this publication.

Corn

A standard variety test includes open-pollinated varieties and proved hybrids. A preliminary test includes new hybrids that are being developed.

Table 1. Corn hybrid and variety test, Beeville, 1947-49

Hybrid or variety	Average acre yield, bushels	Hybrid or variety	Average acre yield, bushels
Texas 24	21.4	Funk G711	18.2
Texas 26	20.1	United U72	18.2
Texas 20	20.0	Texas 11W	16.7
Texas 28	19.7	Texas 9W	16.3
Texas 18	19.5	Surcropper	15.2
Texas 8	18.9	Ferguson's Yel. Dent	13.0
Texas 12	18.5		

Adapted hybrids outyield open-pollinated varieties 20 to 35 percent in the Beeville area. Hybrids should be planted about 25 percent thicker than open-pollinated varieties. Texas 8, 18, 24, 26, 28, 9W and 11W are well adapted to this area. Some out-of-state hybrids have made good showings at Beeville.

Cotton

A uniform cotton variety test includes proved varieties for the Beeville area. Ginning and spinning qualities of these varieties are determined. A supplemental test includes new varieties being tested for this area.

Table 2. Cotton variety test, Beeville, 1945-49

Variety	Years in test	Average yield, pounds lint per acre	Variety	Years in test	Average yield, pounds lint per acre
Ewings Early	3	318	Stoneville 2B	5	264
Empire	5	298	Mebane, 8G Floyd	4	258
Hi-Bred	5	294	Dortch 1(Rowden,Roldo)	5	252
Stoneville 2C	5	287	Rowden Sunshine	5	241
Western Prolific	5	284	Wacona	5	241
Harpers	4	281	Rowden 41B	5	237
Lankart 57	4	280	Texacala, Rogers	4	236
Northern Star	5	279	Qualla, New Imp.	3	230
Deltapine	3	274	New Boykin	2	221
Delfos 9169	5	269	Mebane, Watson	4	218
Lockett 140-46	4	268	Mebane, Original	4	188

Sorghum

A variety test includes proved and new combine types and standard varieties of grain sorghum, as well as some of the better ensilage-type grain sorghum and sargos.

A preliminary test serves as a proving ground for new varieties as they are produced.

Table 3. Grain sorghum variety test, Beeville, 1945-49

Variety	Years in test	Average yield, bushels per acre	Air dry forage, tons per acre
Caprock	5	22.5	1.95
Plainsman	5	19.7	1.24
Shallu Standard	4	19.2	2.02
Schrock	4	18.1	2.86
Bonita	4	18.0	1.83
Hegari	5	17.7	1.50
Martin	5	17.5	1.71
9195 Tex. Bhl. Kaf.	4	16.3	2.15
Yel. Hegari	3	14.5	1.52
Red Top cane	5	14.0	3.17
Texas Milo	4	12.6	1.20
Atlas Sargo	5	11.2	2.73

While Martin is the most popular variety of combine sorghum in this area because of its quick-drying center stem, both Caprock and Plainsman outyield it on the Beeville station.

Atlas Sargo and Red Top cane are the leading ensilage crops in this area. Hegari and Blackhul kafir make good ensilage. Hegari is best for late plantings.

Sudan Grass

Grazing work on Sudan is reported in the summer grazing test with beef cattle.

A clipping test also is run to determine the total forage yields produced by the different varieties. Cuttings are made periodically throughout the season.

Table 4. Sudan grass variety test, Beeville, 1945-49

Variety	Air dry forage, tons per acre
Common	2.84
Tift	2.59
California	2.22
Sweet	1.76

Common Sudan has a pithy stalk that is not very palatable after maturity. It grows off quickly and soon reaches peak production, then goes down rapidly. It matures 7 to 10 days earlier than Sweet Sudan. It is somewhat more susceptible to bacterial leaf blotch disease in damp weather than other varieties.

Sweet Sudan has a solid stem with a decidedly sweet flavor that is relished by livestock. It grows off more slowly than Common Sudan and takes longer to reach its peak production.

Tift Sudan has a solid stem with less sweetness than Sweet Sudan. It is more leafy, grows off more slowly than Common Sudan and spreads its production more evenly over the growing period. It matures 10 to 15 days later than Common Sudan. Apparently it is much more resistant to bacterial leaf stripe.

All Sudan grass is planted in 38-inch rows. February 25 to March 15 is the optimum date for planting. Seeding rates are: Common, 10 to 12 pounds of seed per acre; Sweet and Tift 12 to 15 pounds. One to one and one-half acres are ample to carry a cow. Additional animals can be added in favorable seasons or surplus grass can be harvested for hay.

Yellow Beardgrass (K. R. Bluestem)

Yellow Beardgrass is well adapted to this area. When sown in a cut-over brush pasture it is aggressive in pushing itself into the brush-covered areas and furnishes severe competition for the resprouting brush. It remains green longer than most grasses during drouths and is readily eaten by livestock in September.

Three field plantings of Yellow Beardgrass have been made on the Beeville station. Five acres were planted in April 1946, five acres in April 1947 and fifteen acres in March 1949, all in 38-inch rows. The first two plantings were made on old fields that were partly eroded. Seed was harvested from these plantings in 1947 and 1948. At that time, the ground was completely covered by the grass to the exclusion of all other plants.

Starting June 1, 1949, five steer yearlings were grazed on the ten acres of Yellow Beardgrass planted in 1946 and 1947. During the next five months these steers made an average daily gain of .35 pound per steer. On November 1, they were in poor physical condition.

During the same period, five comparable steers were run on an average native grass pasture. They made an average daily gain of .90 pound per steer. At the close of the period these steers were in a thrifty condition. Both lots of steers had access to an abundant supply of grass.

The test is being continued and additional information will be available when it is completed. The cattle are now available for inspection.

Apparently these three and four-year old Yellow Beardgrass pastures are not as thrifty as they were for the first two years. Fertilizer and renovation tests are now being run. A combination of 200 pounds per acre of 32 percent ammonium nitrate and 400 pounds of 20 percent superphosphate apparently are producing increased growth.

Following mid-April 1950 rains, a severe attack of rust was noted on the plats treated with this fertilizer combination. This rust has been identified by Travis E. Brooks, USDA mycologist, as *Puccinia ellisiana*, a common rust attacking some species of Andropogon grasses in North America.

Cool-season Grasses

Six cool-season or winter-growing grasses are included in a grass nursery planted in the fall of 1949. Clipping yields from these grasses to May 22, rank as

follows: Harding, Smooth Brome, Texas 46 Rescue, Kentucky fescue, Texas Winter (Spear) and Western wheat. A check plat of Ranger oats had clipped more than twice the forage of any of these grasses by May 22. These grasses may be seen in the grass nursery.

Broom Corn

Broom corn is another important cash crop in the Beeville area. Dwarf varieties are grown almost exclusively. Cultural methods are very similar to those of sorghum up to harvest. Hand work in harvesting is the greatest obstacle confronting the broom corn grower. Improved harvesting methods are badly needed. Preliminary experiments show that artificial drying offers possibilities of gaining a higher quality product.

Broom corn hybrids are being developed at the Lubbock station and grown at Beeville for testing and selection. The chief objectives are to develop a more dwarfy stalk with good quality straw and to produce a straw that will not discolor so easily when exposed to rain. Some progress is being made.

Small Grains

The most profitable use of small grains in the Beeville area is to furnish winter grazing. Rust resistant oats have proved to be more profitable for this purpose. Fair seed yields can be obtained in favorable years.

Table 5. Small grain variety test, Beeville, 1945-49

Variety	Years in test	Average yield, bushels per acre	Air dry forage, tons per acre
Ranger oats	5	33.5	1.48
Rustler oats	5	27.0	1.41
Victorgrain oats	1	46.4	1.28
Vicland oats	3	36.6	.97
Tama oats	5	29.5	.97
Emmer (Speltz)	2	19.0	.92
Tunis barley	5	30.6	.91
Clinton oats	1	1.6	.72
Austin wheat	3	9.8	.71
Forvic oats	2	16.4	.70
Red Rustproof oats	3	24.8	.70
Seabreeze wheat	5	9.9	.68

The 1949-50 season has been an extremely bad rust and blight year. Complete data on the 1949-50 test are not yet available. Green forage yields in tons per acre of some of the varieties are: Ranger, 5.17; Camellia, 4.80; Mustang, 3.75; Stanton (Miller's combine), 3.27; Fulwin, 3.17; New Nortex, 3.16; Victorgrain, 2.84; Speltz (Emmer), 1.91; and Italian rye, 1.26.

Three of the most disastrous diseases affecting these small grains are leaf rust, Victoria blight and stem rust. Leaf rust attacks susceptible varieties and retards growth. It is transmitted by air-borne spores. Leaf rust is controlled only by using resistant varieties. Victoria blight is a root and leaf disease that kills susceptible plants. It is transmitted through infested soil and seed. It is controlled by the use of resistant varieties, seed treatment and rotation. The greatest damage has come from these two diseases.

Stem rust attacks susceptible varieties late in the season and reduces seed production. It seldom affects forage production. The only known control is the use of resistant varieties.

Table 6. Reaction of oat varieties to diseases

Variety	Leaf rust	Victoria blight	Stem rust
Ranger	Resistant	Susceptible	Susceptible
Rustler	Resistant	Susceptible	Susceptible
Victorgrain	Resistant	Susceptible	Susceptible
Stanton	Resistant	Susceptible	Susceptible
Camellia	Resistant	Resistant	Susceptible
Red Rustproof	Susceptible	Resistant	Susceptible
Clinton	Susceptible	Resistant	Resistant
Mustang	Resistant	Med. susceptible	Susceptible
Alber	Resistant	Resistant	Susceptible

Certified seed should be used when available. Seed treatment with three-fourths ounce of Ceresan to the bushel immediately before planting will aid in the control of Victoria blight.

Legumes

Previous tests show that Hubam, Melilotus indica and Bur clover give abundant grazing when winter seasons are favorable. Melilotus indica grows more rapidly in the fall. It matures in April. Hubam starts more slowly and matures in early June. Bur clover is adapted to growing in permanent pastures. It is rather difficult to get established but reseeds itself and makes excellent spring grazing in favorable years when once established. All clovers are excellent soil-building crops.

A winter legume test planted in November 1949 includes 13 varieties. Clippings to May 24, give the following rank: Hubam clover, Madrid clover (biennial), Cog Wheel bur clover, Evergreen clover (biennial), Birds Foot Treefoil, Plica Buta alfalfa, Berseen clover, Sour clover, Austrian Winter peas, Black Medic clover, Dixie Wonder peas, Canadian Field peas and Singletary peas. These plats can be seen in the legume nursery.

Southern peas (cowpeas), Guar and Mung beans are used as summer legume soil-building crops. Cowpeas and Mung beans can be grazed.

Flax

Flax is a relatively new crop for the Beeville area. It was introduced by the Beeville station in 1935, but was grown very little commercially until about 1943. It increased rapidly in importance and has now become one of the stable cash crops. Because of the ideal manner in which it fits into our cropping system, flax is likely to become even more widely grown.

Very little research has been done on cultural methods for flax in this area. Seeding rates and dates, methods of soil preparation, fertilization and other problems need attention. Some variety testing and breeding work are underway. Flax storage tests are being conducted.

Table 7. Flax variety test, Beeville, 1948-49

Variety	Freeze damage, percent 1948	1949	Average yield per acre, bushels	Variety	Freeze damage, percent 1948	1949	Average yield per acre, bushels
Turkey Sel. 391	2	5	9.7	Dakota	15	55	8.0
Turkey Sel. 417	2	6	9.7	Crystal	10	36	7.8
Victory	6	50	9.6	Golden	8	36	7.0
B-5128	8	38	9.2	Arrow	12	52	6.7
Deoro	6	44	9.0	CI 1130		50	4.9
Turkey Sel. 321	2	4	8.3	Punjab	90	94	4.0
Rio	5	45	8.2	Maritime		52	3.7
Turkey CI 862	2	4	8.0	Norsk	80	86	2.2

Rio, B-5128 and Golden are the leading flax varieties now planted in South Texas. Golden is 8 to 10 days earlier and seems to be more adapted to the lighter soils. Rio and B-5128 appear to be more adapted to the heavier soils.

The Turkey selections are more cold resistant and are becoming more important in the northern part of the flax growing area.

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