

Greenlee County Safflower Looks Good



This vigorous field of safflower near Duncan, Ariz., is getting scrutiny from the experts.

Left to right: Harold Young, a federal safflower worker; Wilbur Lunt, farmer on whose farm the crop is being grown; Norris Gilbert, U. S. Department of Agriculture safflower investigator; and at extreme right Ernest Foster, Greenlee County extension agent.

Dr. Fred Turner, U of A experiment station superintendent at Safford, took the above photo in July, 1962. The crop was expected to yield a ton and a half to two tons per acre of the precious oilseed.

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variety in 1958. It also made possible recommendations for the cultural practices presently used in growing this crop.

Seek Thin-Hulled Variety

Many new developments will result from research now in progress. The immediate goal of the Experiment Station safflower project is to develop a variety with a thin seed hull. Seeds of all present commercial varieties have a thick hull which must be removed by processors before oil extraction if a high protein content meal is produced. Even with present processing equipment, removal of the hull before processing is sometimes difficult.

When the oil is removed from seed of the present varieties without decorticating (removing the hulls) the resulting meal has a protein content of only 18 to 21 percent. Meal from decorticated seeds has a protein content of 40 percent or more, and is much more valuable as a supplement for livestock, dairy and poultry feeds.

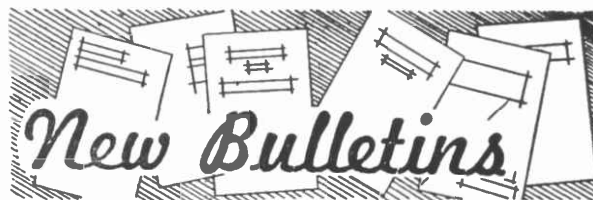
In 1955 Dr. D. D. Rubis of The University of Arizona discovered a mutant strain of safflower which has an almost paper-thin hull on the seed. Unfortunately, the plants produced from this mutant parent were weak-stemmed and low in yield. The transfer of the thin-hull char-

acteristic to a commercial variety is nearly completed. When the new thin-hulled variety is in production, the processor will no longer need to remove the hull from safflower seed to produce a high protein meal.

Seek Other Goals

Progress is being made in other objectives of this experiment station's safflower breeding program. Principal areas of emphasis include the development of varieties which have a higher yield, more oil and more disease resistance. Significant progress is also being made in the development of hybrid safflower, a goal in most plant breeding programs where the advantages of hybrid vigor are not already being realized.

The great variation in safflower yields in Arizona in 1962 indicates the need for expanded research. It is also possible that many growers are not carrying out the best cultural practices already known for this new crop. However, if present trends continue, safflower probably will find a permanent place in Arizona's agriculture.



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Snowflake Site Of Northern Arizona Field Day

Robert V. McKnight

Northern Arizona farmers recently learned more about irrigating efficiency, control of tansy mustard and bindweed, alfalfa, grain sorghum, and hybrid corn. Scene was the farm crop field day of The University of Arizona at Snowflake.

University of Arizona agricultural scientists said that since agriculture in northern Arizona is closely interwoven with livestock and dairying, hay, pasture and silage crops are most important there.

"Forage crops are especially suited to higher elevations of Arizona where winter temperatures are low and the growing season is short compared to southern Arizona," they added. Visiting farmers toured the Snowflake station, examining various varieties of alfalfa, sorghum, and corn.

Area Has Special Problems

"There are special problems in northern Arizona because of great differences in climate and soil in the irrigated valleys of these higher elevation areas," explained Dr. D. F. McAlister, assistant director, U of A Agricultural Experiment Station.

Problems concerned with controlling tansy mustard in alfalfa and field bindweed in both crop and non-crop land were outlined by Dr. K. C. Hamilton, U of A agronomist.

"Tansy mustard is a fairly serious annual weed in the first cuttings of alfalfa in several high elevation counties," he said.

"Most farmers ignore the weed, since
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The author is an information specialist in the Agricultural Extension Service.

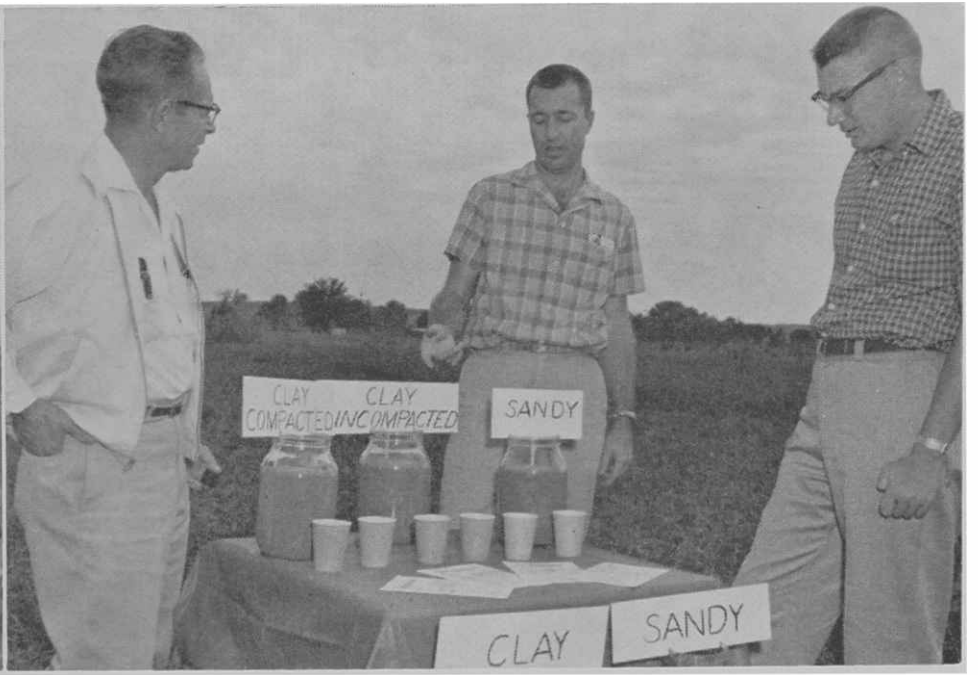
cr, Happier You
284—Improving Teenage Nutrition

Bulletins

- A-22—Dates in Arizona
- A-23—Descriptions and Habits of Arizona Cotton Insects

Folders

- 68—List of Arizona Farm & Home Publications
- 97—Soil and Petiole Analyses Can Pinpoint Cotton's Nitrogen Needs
- 98—Controlling Mesquite with 2,4,5-T



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they get as much for hay containing weeds as for clean hay," he added.

Weedicide Recommendations

Extension tests indicate that diuron probably will remove the mustard when applied very early in the growing season. For many years, 2,4-D was recommended for control of field bindweed (often called morning glory), but control has been only partly successful. Hamilton advised that TBA may now be used to destroy small patches of bindweed. After applying TBA, land should be cultivated and irrigated.

The value of hardy alfalfa varieties for northern Arizona was emphasized by Dr. Martin Massengale, U of A agronomist.

"Based on limited data and farmer experience," Massengale explained, "we feel that farmers in northern Arizona do need alfalfa varieties that have winter hardiness." Some years the non-hardy varieties do well, but not every year, he said.

"You have to consider hay yields for the entire year, rather than just how good the non-hardy varieties look in the spring and fall," he explained.

"Winter-hardy varieties generally take rougher treatment," he went on, "and you get by with cutting alfalfa a little later in the fall and earlier in the spring."

Yield data at Snowflake has shown higher yields with Ranger and Vernal varieties than with Lahontan, both in 1961 and for the first two harvests in 1962.

Discusses Corn Trials

Results of hybrid corn tests at Snowflake and in the Chino Valley were outlined by Dr. Robert Dennis, U of A Extension agronomist.

"Most corn in northern Arizona is

PHOTO AT LEFT, above, shows Dr. Lee Stith (right) discussing a sorghum physiological study during the Snowflake field day. Stith is a UA plant breeder specializing in sorghums. Listening to him are Dr. K. C. Hamilton (left), agronomist specializing in weed studies, and Leonard Isaacson (center), county extension agent for Apache County.

PHOTO AT RIGHT SHOWS a demonstration of irrigation efficiency in different soil types. Left to right: Dr. D. F. McAlister, assistant director of the UA Agricultural Experiment Station; Al Halderman, Extension Service agricultural engineer; and Dr. Martin Massengale, UA agronomist specializing in forage crops. Photos taken at the Snowflake field day by Bob McKnight.

grown for silage purposes," he explained, "and hybrids requiring 110 days or more to mature have, in general, given best results."

Emphasizing the importance of plant population, he said in higher elevations best yields probably will be obtained using 18,000 to 19,000 plants per acre.

"To have such a stand there must be a plant on the average every nine inches in the row when 36-inch rows are used," he added.

Of forage sorghum, Dr. Lee Stith, U of A plant breeder, listed five varieties which he said "show the best all-around adaption at both Snowflake and Chino Valley considering lodging, maturing, and yield." These were DeKalb FS-1A, Lindsey 92F, Lindsey 101F, Northrup King 145 and Northrup King 300, he added.

Know Your Soil

The importance of the kind of soil a farmer has and how this affects irrigation efficiency was cited by Al Halderman, U of A Extension agricultural engineer. "With sandy soil, irrigation water goes in rapidly, and some is wasted down below," he said, "while with a fine clay textured soil, it will take more water and it will penetrate much slower."

National Forests Big Arizona Asset

The federal government is by far the biggest land owner in Arizona. It controls about 54 million acres of which 32.5 million are owned outright and 21.5 million are Indian reservation lands held in trust. Privately owned and state owned lands combined account for 18.7 million acres or 26% of the state total.

The biggest share of Arizona's federal owned land consists of seven national forests which are the source of most of the present usable water yield available to Arizona. These forests also provide recreation, hunting and fishing, forage for livestock, and a commercial timber crop.

National Forests in Arizona

Forest	No. of Acres	Forest	No. of Acres
Apache	1,190,068	Prescott	1,247,622
Coconino	1,800,786	Sitgreaves	768,994
Coronado	1,724,147	Tonto	2,894,314
Kaibab	1,718,043		
		Total	11,343,974

Like other federal properties, national forest lands are not subject to local taxation, but one-fourth of all their revenues is returned to the counties in which they are located, to be used for schools and roads. Over \$500,000 was turned over to Arizona in fiscal year 1961-62 and over \$700,000 in the preceding twelve months.

Outdoor recreation represents the fastest growing use of the national forests in Arizona. There were over five million visits to these lands in 1961 compared with only about one million visits in 1950. As a result, recreation is now a major industry in Arizona. Residents and out of state vacationers combined spent over \$40 million in 1961 on hunting and fishing alone.

Forage for livestock is also an important national forest product. About 145,000 cattle and 67,000 sheep graze in the forests under paid permits held by local ranchers.

Another economic benefit that the national forests provide involves the harvesting of unwanted small trees. Southwest Forest Industries' new paper and pulp mill at Snowflake obtains most of its supply of pulpwood from this source. Without a perpetual store of raw material for continuous operation, the mill would not have been built.

In addition, the national forests in Arizona are the source of most of the mature timber utilized by the state's lumber industry. Timber is sold under competitive bid, and in recent years production has been as high as 225 million board feet.