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South Dakota Farm and Home Research

SDSU Agricultural Experiment Station

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Spring 1984

## South Dakota Farm and Home Research

South Dakota State University

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● south dakota

# farm & home research

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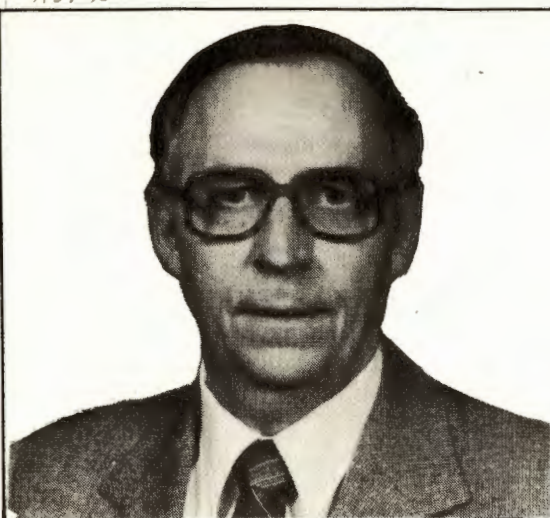


## Meadowlark Forsythia

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# Director's comments

**Former Extension director praises  
team that 'discovers and delivers,'  
counters assumptions with facts**

Our guest columnist is former Director of the South Dakota Cooperative Extension Service Hollis Hall. For 9 years Hollis led the out-state teaching branch of our College of Agriculture and Biological Sciences, guiding specialists here on campus and agricultural agents and home economists in nearly every county.

As he explains in his comments, the Experiment Station and the Extension Service are truly partners, sharing responsibility in bringing the best of agricultural progress to you.

Hollis left us in August, moving to USDA in Washington, D.C., where he is now Program Leader for Legislative and Intergovernmental Affairs. He acts as liaison between congressional committees in agriculture and the USDA agencies. Because his work will take him out in the countryside to talk to farmers, homemakers, and agribusiness people, we hope to keep in contact with a man who has this kind of grasp of agriculture's role in our society.

Ray Moore,  
Director, South Dakota  
Agricultural Experiment Station

One of the greatest successes of the American educational system has been the partnership of research and extension in the land-grant universities. It is a gross error to assume that research and extension activities benefit only farmers.

Research, both basic and applied, has made it possible for Americans to be the best fed, best clothed, and best housed people of the world—at a cost in public support that is only a fraction of that borne by other citizens of the world.

But it is not enough to discover a new way to provide for our needs at a reasonable cost. This information must still be disseminated to producers and consumers before it can benefit anyone.

This is carried out by the other partner—the Extension Service. This teamwork of the scientist and the Extension agent insures the transfer of technical knowledge to the agricultural producer.

This system of discovery, delivery, and application is the genius of the research and extension partnership. But sometimes the system appears to falter.

There are several reasons the system may achieve excellence but not perfection: New problems are constantly surfacing in agriculture. Producers adopt technology at different rates. Some problems take decades to solve; some people take decades to adopt. Some problems are of wider, societal scope, not inherent in the research-extension system itself.

These apparent signs of failure are the very reason research and extension should continue, and more vigorously than ever.

Research cannot be started up and shut down as individual crises surface and are solved. That assumes that human beings can only react to today's problems and can't build on past experiences. It assumes there is time and a pool of money and experts waiting to work on a problem once it is discovered. And, likewise, extension has not taught everyone everything they need to know. That assumes that everyone will learn "once and for all." It assumes that there is an end to learning and that Extension

(continued on page 19)



# Meadowlark

**Both bird and bush are harbingers of spring. Until now, no forsythia has been winter hardy in our state**

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The meadowlark is a bird in the right place at the right time. Just when we've gone through a long, white winter and then the drifts turn gray and everything looks sad, wet, and dirty, here he comes, sporting that brilliant yellow breast. For days, even weeks, he is the only spot of color in a sodden, dull landscape.

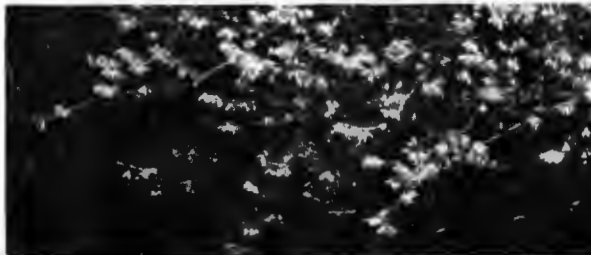
Soon, very soon, there will be other springtime yellows in South Dakota—the flowers of Meadowlark forsythia, just

released cooperatively by the SDSU and NDSU experiment stations.

When the first meadowlarks show up in the spring, Meadowlark will be in full bloom. (April 15 is the average blooming date for the plant in Brookings; subtract or add, depending on your location in the state. Usually blossoms remain until the first week in May in Brookings.)

Because of the earliness of both bird and plant, because of their matching pure





"Robust" best describes Meadowlark forsythia. The flowers are large and deep yellow; the plant, when mature, takes up space—it may top off at 9 feet and be as big across. Ten years of

good and bad South Dakota winters have not daunted it. On top of that, it has drought resistance.

yellow, naming the new forsythia was the easiest part of developing the variety.

### **Meadowlark does more than cope with our winters; it thrives here**

Oddly enough, neither of Meadowlark's parents is hardy here, but mated, they produced an offspring that can survive our winters.

Before Meadowlark was developed no forsythias could be depended upon to bloom in our Northern Great Plains. Some can struggle through the winter and produce a few blossoms, if the snow has been deep enough to cover and protect the branches. Any flowers above the snowline are usually so sparse that the plant becomes a parody of a forsythia.

Homeowners who have moved here from the East remember what a forsythia should be—a solid, showy mass of bright

yellow at bloomtime, no leaves showing yet, and really large, maybe 7 or 8 feet tall. Until Meadowlark, there just was no forsythia robust enough to take our climate.

This past winter was a good one to test the hardiness of Meadowlark. Homeowners and nurserymen have reported winterkill of many shrubs that had been established for years.

Meadowlark overwintered like a native. It survived the early cold temperatures, held off during the warming trend in February, and came through the next period of cold. That late winter thaw is dangerous to some plants; they are often "fooled" by warmer temperatures and begin to break dormancy just as another cold front arrives. Meadowlark is, in fact, so hardy that it has potential for growth in Canada where the people are really anxious for home plantings and spring flowers.

## **Meadowlark is no sissy; it fills a big spot when it's full grown**

The very first Meadowlark originated in 1936 at the Arnold Arboretum in Massachusetts from a cross between a Korean and an Albanian forsythia. In a place where even the weakest forsythia blooms, no one paid any attention to it until the spring of 1967 after an unusually cold winter. The experimental stock which had only a number for a name bloomed profusely while the popular varieties were nearly devoid of flowers.

There still wasn't much enthusiasm for the plant when it was offered to researchers through the North Central Regional Plant Introduction Station in Ames in 1973. But we in North and South Dakota wanted it; and after 10 years of evaluation plantings and study, we re-introduced it to horticultural scientists.

Suddenly, Meadowlark became a star; there was instant (and somewhat envious) acceptance and approval of Meadowlark as a new cultivar, all due to the plant itself which has attracted supporters from the scientific community and from nurserymen across the Upper Midwest.

Meadowlark grows in a dense, regular spreading form to a height of 7 to 9 feet. It is vigorous and fairly rapidly growing. Mature foliage is dark ivy green, maintaining this color until late in the fall. A purple-bronze cast is the first indication of autumn color; however, under continued favorable fall conditions, the leaves often change to golden yellow. The luxuriant foliage is of excellent quality and in our Northern Plains trials has been virtually pest free throughout the growing season.

As attractive as the foliage is, it is the blooming of Meadowlark that will appeal to homeowners. The bright yellow flowers grow thickly on the branches in early spring. They are larger in size and superior to either parent and a deep yellow. Flower buds have not shown injury at -35 degrees F. Plants will begin to bloom when 3 years old. A bonus is that Meadowlark has remarkable drought tolerance.

Meadowlark may serve to partially replace several pest ridden cotoneaster and honeysuckle species. It may also be

used in place of certain large Caragana (peashrub) and mockorange species with inherently leggy growth habits.

## **Meadowlark in your yard gives you springtime color, us a research fund**

Meadowlark was officially registered in January 1984 by the Arnold Arboretum, which serves as the registration authority for all forsythias. To date 32 wholesale nurseries have initiated commercial propagation. You will be able to buy Meadowlark in the spring of 1985.

When you do, you will be supporting research to find you more woody ornamentals we hope will be as successful as Meadowlark.

Each new variety that is released by an experiment station is handled differently. Corn lines simply are buried in the parentage of commercial lines; you may never know, for example, that SDSU contributed to the genetic material in a certain hybrid. New small grain varieties stay distinct; you can, without too much trouble, find out where they originated.

Meadowlark forsythia is different yet. You may forget that it originated at the North and South Dakota Experiment Stations. That's all right; we aren't looking for glory as hard as we are looking for more outstanding ornamentals for our states. When you buy Meadowlark from your local nursery, you are helping us in that search. Here's how it works:

We give the stock to nurseries to propagate. They sell it to you, and part of your money is handed back to the North or South Dakota Nurserymen's Association. It then comes back to us, earmarked for research on more woody ornamentals, hopefully as superior as Meadowlark.

Support of research is not enough to make you go out and buy Meadowlark. What will make you buy it is that glorious yellow shrub blooming its heart out in the middle of a cold gray spring. It's going to be a fine sight. □

*The author is Norm Evers, instructor in the Horticulture-Forestry Department at SDSU. Evers and Dale Herman, professor in the Department of Horticulture and Forestry at NDSU, recognized the potential of Meadowlark for our states and propagated and tested the cultivar in many locations in both states before offering it to the public.*



# A shot for scabies

**SDSU-researched drug is now approved by FDA; it's not as hard on the cattle as dipping**

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You can now ship cattle across the state line without dipping them for scabies, **if** you substitute an injection of ivermectin.

The drug, researched by an SDSU team of animal and veterinary scientists, has been approved by the Food and Drug Administration for treatment and control of cattle scabies. The South Dakota Livestock Sanitary Board has adopted the federal regulations approving ivermectin for cattle scabies.

Most shippers wouldn't be unhappy to see the inconvenience and difficulties of dipping go. And they'll like the fact that ivermectin is safer; it is less stressful than the dipping process.

But ivermectin is not the perfect answer to scabies. Under terms of FDA approval of the product:

Animals must not be slaughtered until 35 days after treatment.

The product cannot be used on female dairy cattle of breeding age.

And it may be used only by, or on the order of, a licensed veterinarian.

Also, USDA's interim shipping rules require treated cattle to be kept physically separated from other cattle for 14 days after treatment. After 14 days, all the scabies mites on treated cattle should be dead or incapable of infesting other cattle.

Scabies is a contagious skin disease. It is caused by tiny mites that pierce the skin and feed on body fluids released from the wounds. The mites are spread by contact between animals.

Ivermectin is an antibiotic which has no antibacterial activity but which is effective against certain internal and external parasites. Introduced as "Ivomec" by Merck, it is also a broad-spectrum wormer and controls blood

sucking lice, mites, and grubs at the same time it is administered for scabies.

## **They took pity on control calves, later cured them of scabies too**

To test the drug, SDSU researchers obtained 20 scabies infected calves with the assistance of the Livestock Sanitary Board, and moved them under quarantine to the Southeast Experiment Farm near Beresford. There, half were injected with ivermectin and half were untouched. Skin scrapings were taken weekly for 8 consecutive weeks and examined microscopically by the Veterinary Diagnostic Laboratory.

All animals were positive for mites on the first scraping. At the second (the eighth day), only three of the treated animals carried mites. On subsequent scrapings, no mites were found on any of the ivermectin treated calves.

In contrast, some of the control animals continued to test positive for mites throughout the entire 8-week trial. After the test period, the control animals were also treated and cured of scabies.

The data obtained from the trial was forwarded to Merck & Co for inclusion in their petition to the FDA. Researchers working on the project included Dr. James Bailey, Extension veterinarian; Gerry Kuhl, then Extension livestock specialist; Herley Miller, associate professor of animal science; Hazel Shave, assistant professor of veterinary science; and Darryl Thorpe, assistant state veterinarian. □

*The writer is Jerry Leslie, information specialist in the Ag Communications Office.*



## Feeding flowers

**If sunflower crop isn't good enough for the crushers, two options are to feed to sows and to growing-finishing swine**

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A field of sunflowers is not the risky and speculative crop it was a few years ago. Sunflowers are becoming a steady income-producing enterprise; many varieties now contain about 40% oil that

is highly unsaturated and in demand as a cooking oil.

But if your crop this year is not suitable for oil production, what alternative uses can you find for it?





On the right in each picture are cuts from pigs fed diets which contained 20% sunflower seeds. Cuts on the left are from pigs fed no seeds. Unsaturated fatty acids are the culprits that cause "soft" carcasses, but they do not affect the lean muscle tissue or



the color of the meat. When the primal cuts are processed into wholesale cuts, the lack of firmness does not appear to be a problem.

One is on-farm feeding to swine.

Research with other types of high-fat products has shown that adding fat to a diet for growing-finishing pigs will increase the efficiency of feed utilization and have little or no effect on average daily gain.

For sows during late gestation and early lactation, supplementation with fat has been recommended as a way of increasing survivability of newborn pigs. Pigs are born with only limited amounts of energy reserves, so increasing their energy stores and the energy content of the sow's milk should increase pig livability.

But using sunflower seeds to obtain the extra fat is a new idea. Some questions come up.

Would sunflower seeds affect the palatability of the diet? Would the high level of unsaturated fatty acids that is present in sunflower seeds affect carcass quality and consumer acceptability of the pork product? Would sows consume sunflower seeds at levels high enough to increase the fat content of their milk?

#### **Sows accept seeds up to 25% of diet; after that they aren't tasty anymore**

We fed 99 bred sows three different diets to discover some of the answers.

The 99 were divided into three groups and fed diets containing 0, 25, and 50% sunflower seeds from day 100 of gestation through day 14 of lactation.

The diet containing 50% sunflower seeds was unpalatable to some sows. There was indication of reduced

digestibility of all nutrients except their extract (fat).

The percent of milk fat at 1 and 2 weeks of lactation was increased as the level of dietary sunflower seeds increased. But survival or weight gain of pigs was not different among treatments.

Replacing part of the energy and protein in sow diets with 25% sunflower seeds had no adverse effect on sow or pig performance.

Sunflower seeds can be used as an alternative ingredient at the level of 25% in gestating and lactating diets. Because of reduced digestibility of most nutrients in the 50% sunflower diet and the failure of some sows to consume this diet, we would not recommend including sunflower seeds at levels above 25%.

#### **For market swine, keep sunflowers at 10%, or carcasses may go soft**

Performance and carcass characteristics of growing-finishing swine as affected by dietary sunflower seeds were studied in two experiments.

Up to 10% sunflower seeds can be added to diets without adversely affecting performance. Average daily gain was increased when diets contained 5% and decreased when diets contained 20% sunflower seeds. Feed efficiency and daily feed intake were not affected by the levels of seeds we used (2.5, 5, 10, or 20%).

Carcasses were progressively softer and less firm as the level of sunflower seeds in the diet increased. The fatty acid composition of the backfat indicated a



marked increase in linoleic acid and decreases of all other fatty acids as dietary level of sunflower seeds increased. The proportion of linoleic acid in backfat was solely responsible for an increase in the overall degree of unsaturation of the fatty acids in backfat.

Although not severely affected, bacon slicing became more difficult with each increase in the dietary sunflower seeds.

"Soft" carcasses are a problem to some meat packers. The primal cuts do not hold their shape; they sag and flatten out, as compared to those from firmer carcasses, and cutting becomes more difficult. When swine feeds contain an abundance of unsaturated fatty acids, especially linoleic acid, the carcass will be soft and pliable.

Unsaturated fatty acids do not affect the lean muscle tissue or the color of the meat. And when the primal cuts are processed into wholesale cuts, the lack of firmness does not appear to be a problem.

Four loin chops were removed from each carcass for chemical analysis and

for taste panel evaluation. Taste panel members did not detect any differences in flavor, juiciness, tenderness, or overall desirability of the cooked chops from pigs fed 0, 5, 10, or 20% sunflower seeds.

Percentages of moisture, protein, and fat of fresh meat samples taken from the loin chops were also unaffected by level of sunflower seeds fed to the pigs.

So, for growing-finishing pigs, high-oil sunflower seeds which are not acceptable for oil production can be fed at levels up to 10% of the diet.

It can be expected that diets containing this level of sunflower seeds will produce changes in the fatty acid composition of fat and will produce carcasses that are less firm. Our results indicate that these changes will not affect consumer acceptance of the pork.

Meat packer acceptance of the carcass will vary, depending on individual preference and degree of automation involved in the operation. □

*The author is Dr. Richard Wahlstrom, professor in the Animal and Range Sciences Department.*

## Research notes

### Two lamb crops may be possible

It may be possible to produce two lamb crops per year in South Dakota.

Lambs were weaned from 10 aged Targhee ewes on Feb. 2, 1982. Ewes were then placed in 8 hr of light and 16 hr of darkness each day in a controlled environment for 38 days. During this time they were continuously exposed to a Suffolk ram. After 60 days, 8 of the 10 ewes were pregnant. Seven lambed between June 29 and July 23, at a rate of 1.4 lambs per ewe.

Additional work is needed to determine if the result was due to the cessation of lactation, or the reduction of light per day, or a combination of the two.

Researchers: Richard Rogen, graduate assistant, and Lowell Slyter, project leader and professor, both in the Department of Animal and Range Sciences.

### Theory doesn't grow corn

Foliar fertilization makes sense, but theory can't grow corn or soybeans. Yields may increase, not be affected, or even decrease, depending on environmental interaction, timing of feeding, variety, and location.

Leaf burn is a problem when feeding macro nutrients (nitrogen, potassium, sulfur, and phosphorus). Feeding micro nutrients is a different story; they can make a significant contribution to the mineral

nutrition of the plant without burning.

Soybeans have the best potential to benefit from foliar feeding. They have less developed root systems than corn, so are more likely to severely cannibalize their roots for nutrients when developing seeds. Cannibalizing the roots reduces their ability to mine the soil for further nutrients.

The higher the evapo-transpiration rate (the amount of water lost from the plant by evaporation) the more sensitive the plant is to leaf burn. This has real significance for irrigators along the Missouri River where the evapo-transpiration rate is high.

Researcher: Paul Fixen, assistant professor in the Plant Science Department.



# Is the exodus over?

**They are leaving the glitter and bright lights. But are they coming to South Dakota?**

Pick up a newspaper, a national magazine, you can expect a story like this: Population Trends Reverse: Thousands Leave Cities.

**New settlers in South Dakota?**

Will our wide open spaces suddenly fill with people? Linda Baer, SDSU rural sociologist, tell us what we all suspected: we don't fit the national mold.

Dr. Baer explains that, for the past 30 years, the flow of people from the U.S. agricultural heartland has been steady. "This out-migration of people who sought opportunities in the more populated, metropolitan regions has had dramatic consequences in the areas they left behind."

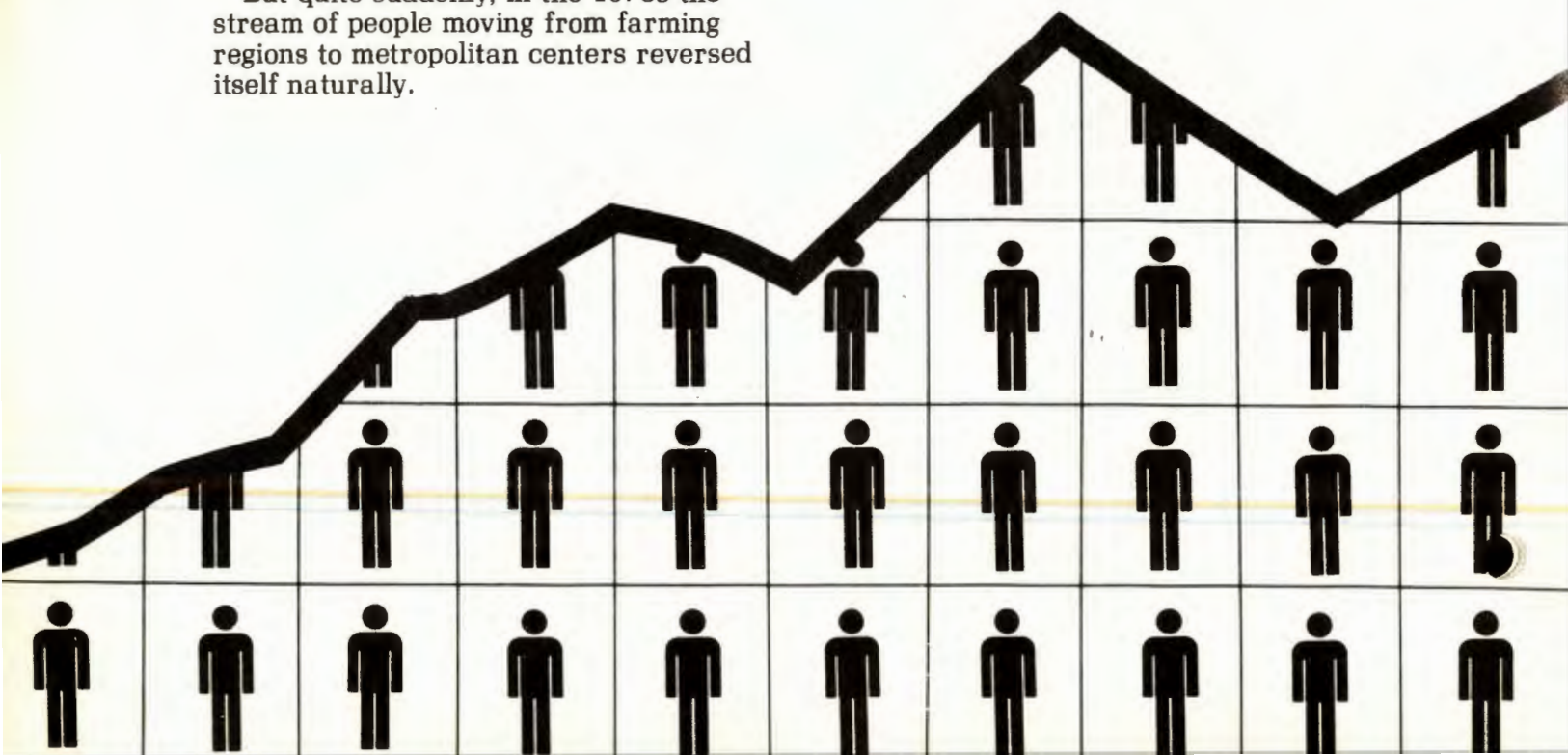
But quite suddenly, in the 1970s the stream of people moving from farming regions to metropolitan centers reversed itself naturally.

The decline in numbers of people in rural and small-town areas shifted to a gain of 15.8%. Growth in metropolitan areas dropped to 9.8%.

"Nobody was on record as having predicted this," said Baer. "Even the experts seemed surprised."

**Who were these newcomers?  
What were they looking for?**

That got Baer to thinking. Who were these people who began moving to rural areas in such numbers? How do they



differ from those who continue to move away? Are these former city dwellers picking certain rural localities to settle in, and why?

Most important, what can we learn from this emigration from the cities that will be valuable for local persons such as county commissioners, township board members, school boards, businessmen, and the rest of us?

Heightening her interest was the knowledge that "those places left behind in the earlier part of the 30-year period (1950-1980) generally now had fewer jobs, fewer services, fewer young people, more poverty, and withering morale and community spirit."

Census data and other surveys confirmed this. The north-central region, the nation's "breadbasket," had been hit particularly hard by population loss during most of those 30 years. The mechanization of agriculture during the 1950s in the Dakotas and Nebraska resulted in especially dramatic losses of persons who left their farms for jobs in the industrial regions of the nation. By 1970, the overall movement of people from rural to industrial areas had been minimized, but the Dakotas, Iowa, and

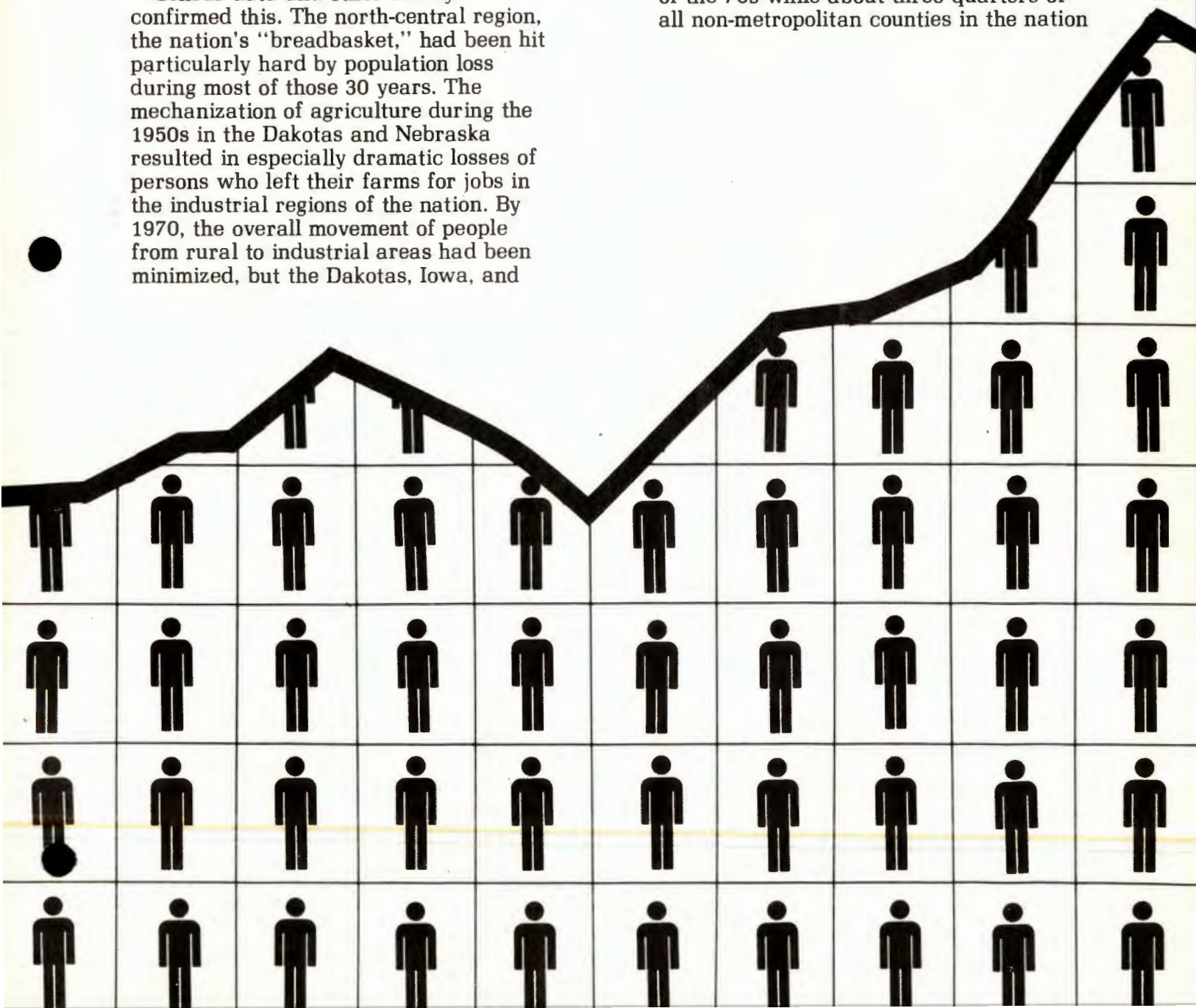
Nebraska still showed a continuous loss in their populations.

During the first 20 years of the period, about 200,000 persons left South Dakota—a 14% loss overall.

That's close to a third of the people of the state.

Within South Dakota, two thirds of all counties lost population, but 12 counties lost more than 15% each decade during 1950-1970. Even for the latest decade, 1970-1980, when the rate of loss for most U.S. rural areas slowed by 10%, three quarters of all South Dakota counties still reported population losses.

Disturbing figures, Baer agrees. "We were still losing people during the decade of the 70s while about three quarters of all non-metropolitan counties in the nation





were experiencing population growth."

During the 1960s, there was a net national movement of about 300,000 persons per year to metropolitan areas. Today, said Baer, about 380,000 persons annually are moving from metropolitan areas.

### **Will they find what they want in South Dakota?**

Baer extracted some reasons for this turnaround from the data. Nationally, employment opportunities had begun to decentralize. There was growth in local governmental services. The energy industry brought "boom" conditions to several rural areas. There were more retirees moving to non-metropolitan areas, and there were expanded recreational opportunities.

The catch in this is that South Dakota doesn't have many of those drawing cards in its counties.

Baer found, for instance, that the population loss had resulted in more poverty, more unemployment, fewer services, and services of lower quality in several South Dakota localities. Of the 10 poorest counties in the nation, four were in South Dakota—and three of those counties had experienced population losses exceeding 12% even during the 1970s.

"The consequences vary with the kind of people who migrate, but in all cases the effects are significant. In the national picture, immigration of people puts stress and strain on existing services and facilities. When the influx of people was high, it heightened the anxiety levels of residents already living there. There was generally also a high impact on local schools, city governments, health and social services, and the local economy."

### **Since we go against the trend, we have to make different plans**

That kind of stress has not been particularly noticeable in South Dakota.

"Furthermore, the national growth trends could send false signals to those who have local leadership responsibilities," Baer adds.

Why were we going against the trend? Baer developed profiles of counties that experienced population growth and those that did not, and found the answers.

New residents weren't coming back to farm. The influx of population is tied more to other jobs than those in the traditional rural industries like farming, mining, and lumbering. Areas of the state which still have predominant economic ties to agriculture therefore aren't apt to experience growth. Predictions that the number of South Dakota farms will drop to 30,000 by the year 2000 seem to support this.

"The implication for local leaders is that when the local economy is strongly tied to agriculture, with fewer alternative jobs and industries, the population is not only apt to continue dropping, but the average age of those who remain will get older and older," she said.

"With fewer and older people, planning for services obviously should be geared toward the type we normally associate with older people."

For counties with a growing number of alternative employment opportunities apart from agriculture, the reverse is true: "Local leaders should prepare for a population increase and a younger average age among local residents.

"That means they may need to consider improving and expanding educational facilities, child care facilities, and government services such as fire and police protection. They may need more housing, more recreation, increased utilities, and a different approach to health care facilities and services.

"When local planners and others responsible for such services pay close attention to the profile of their local *economy and the people they serve*, they can very probably avoid being fooled by national population trends which might otherwise tempt them to make decisions which later turn out to be expensive mistakes."

The writer is Larry Tennyson, information specialist in the Agricultural Communications Office.



# ● On corn: Eyespot

**New disease shows up, but not found in commercial fields yet. It has killed fields back east**

Eyespot, a disease that is found on no-till and irrigated corn in eastern Minnesota and western Wisconsin, has been diagnosed for the first time in South Dakota by M.L. Carson, SDSU Agricultural Experiment Station pathologist.

The disease was discovered in an SDSU test plot.

Eyespot attacks corn early in the growing season but is usually most common from late August through October. Symptoms are large numbers of small, oval to round spots about 1/8 inch in diameter on the leaves. The centers of these spots are tan to cream, with distinct, water-soaked to brown or purple margins. A yellowish "halo" around each spot will appear translucent when the leaf is held to the light. The halo gives the disease its "eyespot" name. While lesions also appear on husks and kernel infections have been reported in other states, usually much greater symptoms appear on the leaves.

Eyespot is caused by a fungus which overwinters in corn debris. Early spring winds carry the spores to seedlings where they germinate. Disease development is favored by cool, humid weather; secondary spread is by rain splash and wind. Consequently, the disease can spread rapidly within a field and from one area to another. In Wisconsin, several affected fields have been killed by the eyespot fungus within 2 weeks.

Only corn is a host for eyespot. A look-alike is holcus spot, although symptoms of



Eyespot on corn (photo courtesy of University of Illinois).

this disease usually disappear later in the season.

Eyespot has not been found in commercial corn fields in South Dakota even though susceptible hybrids are widely grown here. □





# For horses: Kelly

**If you raise oats to sell and if you want a premium price, be on lookout for this new variety**



If you know somebody who has horses and takes them seriously, chances are you've learned that nothing is too good for his "pets."

You just might use that to your advantage, if you let him know you will be raising a new variety of oats just released by SDSU and aimed at the race horse and pleasure horse market.

Kelly is a white hulled, high test weight oat of the kind that commands a premium price and makes an attractive oat for anyone trucking grain, according to its breeder, Dale Reeves of the Plant Science Department.

Kelly was named after Clarence "Kelly" Olson of Brookings, a technician on the SDSU small grain project for many years.

The new variety is a cross of Dal and Nodaway 70.

Nodaway 70 is a Missouri release, a purification of Nodaway, which found a home in South Dakota. It is grown mainly in the southern part of the state, and the same will be true of Kelly, Reeves predicted.

Nodaway 70 has been popular because of the grain quality—large, white hulled oats high in test weight and popular in the premium market for race horse oats. Dal is a high protein line from Wisconsin.

Nodaway 70 doesn't have very good straw strength and tends to lodge when planted on soil of high fertility, Reeves said.

Kelly has better straw strength and better leaf rust resistance than Nodaway 70, characteristics it inherited from Dal.

The new variety retains the large, white hulled kernels of Nodaway 70.

**Seed will be available to farmers next spring**

Kelly was released early this spring and will be available in the spring of 1985 to farmers through Certified Seed growers and commercial seed dealers. Development of the new variety began in 1972 and was completed in 1984.

Kelly, Nodaway 70, and Preston are very similar in heading date. Kelly is fairly tall for an early variety, being about the same height as Nodaway 70.

Yields are equal to Nodaway 70 with low levels of crown rust. Yields are much better in years of considerable rust because of Kelly's resistance.

Kelly averages about a half pound per bushel higher test weight. Groat protein is considered moderately high, as it is 1 to 1½% higher than Nodaway 70. Groat oil has averaged 7.5 and 6.7% respectively for 1982 and 1983 in South Dakota tests. This is .8 to 1% higher than Nodaway 70 in the same tests.

Kelly is smut resistant but quite susceptible to barley yellow dwarf. Crown rust readings for Kelly were 5 and 30% lower than Nodaway 70 for 1982 and 1983 respectively at Brookings.

Probably the best area for Kelly and Nodaway 70 is south and west of Brookings. Mid-season and late-season varieties generally do better to the north, Reeves says. □

The author is Jerry Leslie, information specialist in the Ag Communications Office.



# For pastures: Sunburst

**New variety is big improvement over older switchgrasses, will give a better summer pasture**

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"Sunburst," a new variety of switchgrass, has been released by the Agricultural Experiment Station at SDSU.

The new variety was developed by the late James Ross, grass breeder at SDSU, for larger seed, improved seedling vigor, and superior stand establishment characteristics.



Switchgrass is a tall, native, warm-season grass used for both pasture and hay. It provides pasture during July and August when many of the cool-season grasses like brome and the wheatgrasses are nonproductive, according to Arvid Boe, who succeeded Ross.

Foundation seed became available this spring for Certified Seed growers. Certified Seed will be ready for farmers in the spring of 1986, possibly in spring 1985, depending on the season. Perennial warm-season grass seed production isn't high the first year, Boe said.

Ross collected the material from southeastern South Dakota near Yankton, planted the seeds at Brookings, and selected for the largest seeded plants. These became parents for the variety.

Boe said the new variety could be used statewide, but probably will be used mostly in the eastern half of South Dakota. He thinks it may also be used in North Dakota where the Soil Conservation Service is impressed with it. Sunburst has performed well in North Dakota, even along the Canadian border, he said.

Sunburst is "very productive, yet it's winter hardy. It is a medium maturity variety," Boe said.

In trials in South Dakota, it has exhibited higher seedling survival and stand establishment than Summer and Nebraska 28, two other varieties of switchgrass tested.

Some other grasses released by Ross include Rebound brome grass, Cottonwood brome grass, and Retain creeping foxtail. □

*The writer is Jerry Leslie, information specialist in the Agricultural Communications Office.*



# The great debate

**In poll, only 19% of farmers  
favor keeping present system  
of making farm policy decisions**

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Most South Dakota farmers and ranchers favor major changes in the process used to make key farm policy decisions.

Specifically, when asked, "Who should make the major farm commodity policy decisions?" only 19% favored continuation of the present system in which Congress and the Secretary of Agriculture make the key decisions.

A two-thirds majority of the survey respondents was evenly divided between those who favor an independent decision-making board of farmers, agribusiness, and consumers and those who favor farmer-organized and farmer-financed commodity programs of their own.

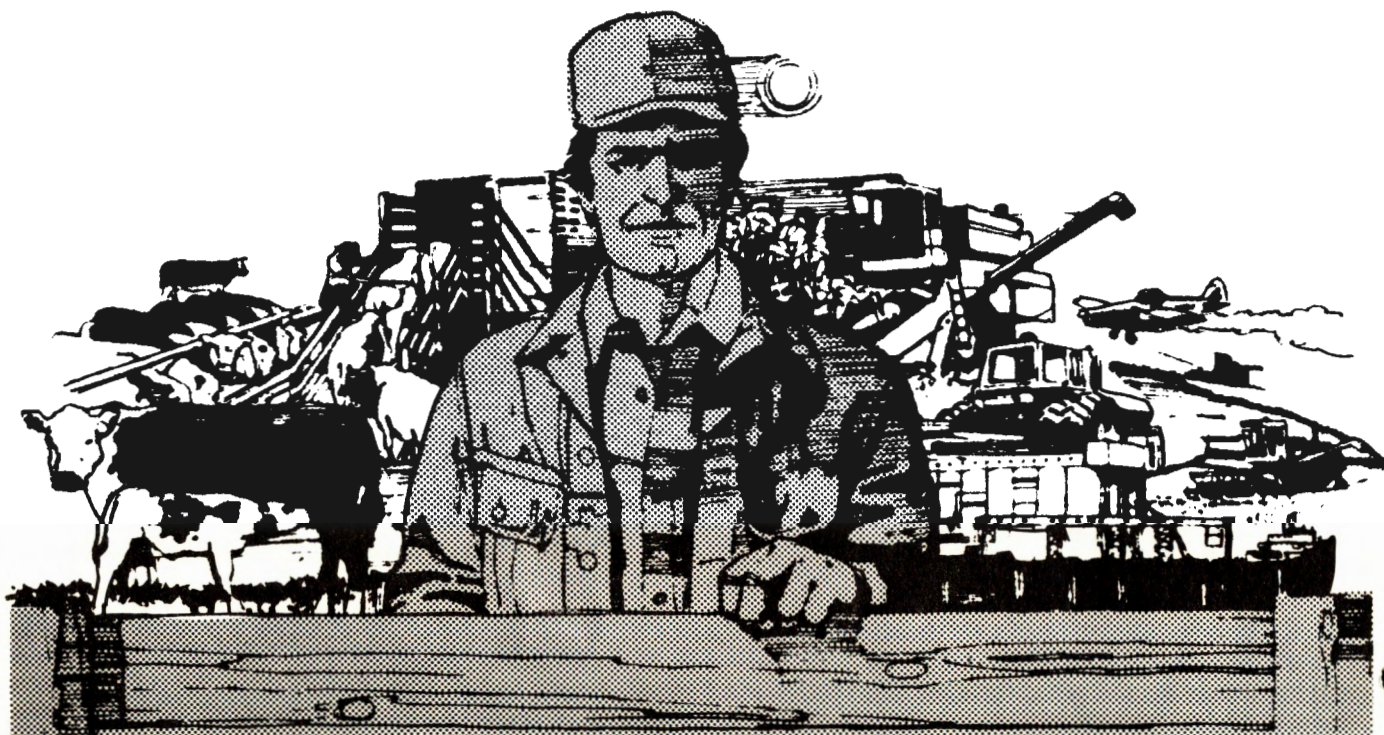
The survey was based on 480 responses to a randomly selected

statewide sample of South Dakota farmers. It was specifically designed to document attitudes of South Dakota agricultural producers for input into the upcoming 1985 comprehensive farm and food policy debate in Congress.

**In a word—too much politics in  
agriculture, say the respondents**

Similar surveys have been conducted and are being compiled in 17 states across the nation. Preliminary tabs from these states indicate responses consistent with ours on the question of "Who should make the key farm policy decisions."

What the farmers have said is that the present system is too sensitive to politics.





Farmers have experienced emergency program changes, embargoes, and PIK programs. In some cases, policy has been decided after the crop has been planted, forcing producers to decide whether or not to plow it up.

The options picked by the survey respondents indicate that farmers are interested in a more stable, longer-term approach to policy, with direction given by either an independent board or by farmers controlling and financing their own program.

The survey results also indicate that farmers are evenly split among (1) continuing present voluntary programs, (2) moving to mandatory programs, or (3) eliminating all acreage reduction, price support, and grain reserve programs. However, our cross tabulations indicate that grain producers give a slight edge to continuation of voluntary programs, while livestock producers give the edge to the elimination of farm programs.

The survey included more than 20 questions covering domestic farm policies, international trade, and federal budget policies.

### **Farm programs get mixed reviews; opinions on PIK evenly divided**

If voluntary programs are continued in 1985, 67% are in favor of continuing target prices and deficiency payments, 60% are in favor of continuing acreage diversion payments, and 57% are in favor of continuing the farmer-owned grain reserve. However, 67% are in favor of setting a limit on the size of the reserve, with half of all respondents favoring a limit based on a percent of the previous year's commodity use.

On soil erosion and conservation, 69% favor requiring farmers to follow recommended soil conservation measures to qualify for price and income support programs.

Farm programs should be changed to give most price and income support benefits to small and medium farms with annual gross sales under \$200,000, according to 69% of the respondents. In addition, 49% recommended that no change be made in the present \$50,000 farm program payment limit, 34%

avored reducing the payment limit, and 15% favored increasing it or eliminating the limit completely.

When asked about Farmers Home Administration policies, 49% generally favored continuing the present policy of not foreclosing unless all repayment efforts have failed, 26% favored a general or selective moratorium on foreclosures, 15% favored a stricter policy on delinquent loans and foreclosures.

Farmers are evenly divided on whether a payment-in-kind program should be used again if large surpluses reappear. However, 52% believe that PIK programs are basically unfair to livestock and poultry producers, while 27% disagree. Cross tabulations indicate that grain producers are evenly split on PIK's fairness, but 71% of the livestock producers believe that PIK type programs are unfair.

### **U.S. version of Canadian Wheat Board got high marks in survey**

When asked, "How should international trade be organized?" only 18% chose agreements with food exporters to control production and price; 57% of the respondents were split evenly between strengthening the open market approach and entering agreements with consuming nations to protect our market share.

To increase export sales, 67% agree with establishing an international trade marketing board such as the Canadian Wheat Board; only 4% disagreed.

Sixty-three percent agreed with lowering federal budget deficits to reduce the exchange value of the dollar, making the United States more competitive in the international markets; 11% disagreed.

Sending more food aid to hungry nations was agreeable to 61%, while 15% disagreed.

Expanding farmer financed foreign market development programs was agreeable to 50% of the respondents but not to 16%.

Lowering U.S. trade barriers to encourage other nations to do the same was opposed by 37% of the respondents; 30% were in favor.



And 48% of the farmers were opposed to lowering commodity support prices to make our exports more competitive in world markets; 20% were in favor.

**Balance the budget, says 85%;  
cut all programs, says 64%**

Balancing the budget is an important objective to 85% of the farmers. On how this should be accomplished, 64% were in favor and 17% against balancing the federal budget by a substantial cut in all government programs including farm price and income supports. Conversely,

40% were opposed and 28% in favor of reducing budget deficits by raising taxes coupled with an expenditure freeze.

On federal farm spending priorities, 39% of the respondents picked the highest priority to be export expansion and market development; 24% picked price and income supports; and 24% picked soil erosion and conservation spending. □

*The authors are Dr. Mark Edelman and Dr. Larry Janssen, SDSU agricultural economists. This summer Edelman testified before a subcommittee of the Senate Committee on Foreign Relations regarding the agricultural trade portion of this survey.*

## Research notes

### **Chlorsulfuron carries over**

Chlorsulfuron (tradename Glean), an effective herbicide currently labeled for wheat and barley, has carryover problems that limit rotation with other commonly grown crops in South Dakota.

In spring 1981, four rates of chlorsulfuron (0 to .06 lb active/A) were applied postemergence to oats at Watertown and spring wheat at Redfield. Flax, sunflowers, corn, soybeans, and grain sorghum were planted in spring 1982, and crop injury was evaluated by visual ratings and crop dry weight samples. Also in 1982, spring wheat experiments duplicated those of 1981. Test crops were planted again in 1983.

Crop injury was substantially greater at Redfield in both 1982 and 1983. Differences in climate and soil texture between the two locations were small, but differences in soil pH and organic matter appeared to explain the higher crop injury at Redfield (pH 7.5, OM 3.0) than at Watertown (pH 6.4, OM 4.0).

Until more is learned about the pH relationship, the

recommendation is to not rotate chlorsulfuron with anything but wheat or barley.

Glean is probably of most use to wheat-fallow farmers because they can treat their wheat and get control the next year into the fallow period.

Researchers: Mark Peterson and Eugene Arnold, graduate student and professor in the Plant Science Department.

### **Steers gain equally on protein supplements**

Protein supplements stimulated gains made by 520-lb steer calves. It made no difference whether the protein was provided by urea, soybean meal, heat treated soybean meal with whole beans, urea with dehydrated alfalfa meal, or soybean meal with dehydrated alfalfa meal.

Steer calves (192 Hereford, Angus, and Hereford-Angus crosses) were fed for 105 days. Diets consisted of 90% corn silage plus 10% supplement on a dry basis.

Urea fed steers showed lower gains during the first 26 days, but caught up by the end of the study. Steers getting protein

supplement gained more than the unsupplemented (control) group and ate more feed, but ended up with lower feed requirements per pound than control groups.

Researchers: L.B. Embry, R.M. Luther, and M.J. Goetz, and assistants L.F. Palmer and J.G. Nothnagel, all in the Department of Animal and Range Sciences.

### **No change with antibiotics**

The addition of antibiotics to a creep feed for nursing pigs from 14 to 28 days of age made no difference in weights, survival, or feed consumption.

Litters from 30 sows received a 21.5% protein creep diet which contained (1) 150 grams terramycin plus 150 grams neomycin sulfate per ton of feed, (2) 100 grams chlortetracycline plus 100 grams sulfamethazine plus 50 grams penicillin per ton of feed, and (3) no feed additive.

Pig feed consumption was relatively low during the 2-wk period.

Researchers: George Libal and Rick Wahlstrom, professors in the Department of Animal and Range Sciences.



## Director's comments

(continued from page 2)

Service has the responsibility to impart "all" learning.

Public funding provides much of the support for agricultural research and extension. Rightfully cautious about misspending, some people make some additional assumptions:

"There are commodity surpluses already; we don't need more research and education to increase production to give us even more surpluses."

In fact, many people in the world are hungry. The goal of the agricultural complex is not increased production, but provision of a safe supply of food at a reasonable cost.

"Times are tough; we can't afford frills like research and extension."

In fact, tough times are the times when publicly supported research and education are most needed; private funds tend to dry up faster. Tough times are when research and extension really provide the greatest payback to the public for dollars spent.

"Let those people that benefit from research and extension pay for it directly."

In fact, that's just what's happening. Over 225 million people in the United

States benefit, since they are consumers of food. What method of benefit assessment other than public tax funds would be more equitable?

"Research and extension coddle too many inefficient producers; let them be absorbed by the aggressive, efficient farmers."

In fact, inefficiency is rarely a matter of choice. Determinedly inefficient producers will fall out, no matter what anyone does; without research and extension to slow the process, too many displaced farm families would migrate to an unfamiliar labor market with few job skills or become public wards. It is not the role of research-extension to decide who will be a farmer. That responsibility doesn't belong to anybody but the person himself.

There are other facts we could put before you. Here is one of the best ones: With returns of 20 to 40 times for research and extension dollar expenditures, there are few public investments that have as sound a payback.

Public commitment to agricultural research and education (both extension and in the university classroom) has been and will continue to be a good investment in the present and the future for all citizens of the country. □

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Tradenames are used for reader convenience and do not imply endorsement.

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This new forsythia has touched off waves of applause from horticulturists all across the northern U.S. It is as welcome in spring as the first meadowlark and blooms abundantly about the time the bird for which it is named shows up in South Dakota.

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#### A shot for scabies

Shipping cattle out of the state and fed up with dipping them first? Use this new injection, researched at SDSU and approved by FDA.

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#### Feeding flowers

If your sunflower crop isn't up to market quality, keep it on the farm, feed it to your hogs. At 25% of diet, it will replace part of the energy and protein for sows; at 10%, it can be used in growing-finishing diets.

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#### Is the exodus over?

In a turnaround that caught everyone by surprise, the cities are shrinking, the countryside is growing in population. Will South Dakota cash in on this phenomenon? Will new blood come into the state?

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It's not time to panic. This new disease has been found in only one place in South Dakota, and that in an experimental plot. We do grow susceptible hybrids, however.

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#### For horses: Kelly

The person who owns a horse or more has already gone to a lot of expense and effort to keep his pet. He might as well have the best oats to feed him, right? Kelly is it, new from SDSU.

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The pasture that looked so promising in the spring can burn out in summer unless it contains some warm-season grasses. This new SDSU switchgrass may be one of the best to plant.

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#### The great debate

Who said farmers were so independent they couldn't agree on anything? A consensus developed quickly enough when they were asked about the government and its farm policy.