



Grazing Management

Hog Pastures and Conservation Compliance Illinois

General Information

Significant problems exist in meeting conservation compliance requirements for livestock producers. These include high intensity grazing of hogs on forages in rotation with row crops, grazing crop residues, and manure injection of HEL fields.

Swine pasture trials have been conducted to learn more about the interrelationships of pasture species selection, seeding rate, stocking density, grass stand (plants per sq. ft.), and per cent ground cover. These trials have networked the experience, knowledge, and skills of pro-active swine producers, the Natural Resources Conservation Service and University of Illinois Extension.

Initial trials were seeded in the spring of 1992 utilizing alfalfa and grass mixtures. The grass species included were: 1) Tetraploid perennial ryegrass, 2) Matua Rescuegrass, 3) low endophyte Tall Fescue, and 4) Orchardgrass. These trial plots were intensively grazed and evaluated during 1993 with a mean stocking rate of 11.6 sows and litter per acre. Grass stands and % cover were evaluated throughout the year.

Results indicated that tetraploid perennial ryegrass exhibited a very vigorous growth habit and was able to withstand high levels of grazing and trampling. It maintained higher levels of ground cover throughout the season. Tall Fescue established well, exhibited high stand counts, and even with very high grazing intensity was able to maintain over until late in the season. Tall Fescue also reduced the seed cost per acre. The use of alfalfa-orchardgrass under high intensity use, held up through mid season but declined rapidly to only 20% cover in the fall. Matua rescuegrass was found to be unsuitable under these harsh conditions.

Another trial was established in (4) locations during the spring of 1994 with an oat cover crop. Species selected included: 1) Tetraploid perennial ryegrass @ 20 lbs./A, 2) Low endophyte Tall Fescue @ 16 lbs./A, 3) Alfalfa-Orchardgrass-Ladino @ 6-6-1 lbs./A, and 4) A combination of Tetraploid perennial ryegrass and Tall Fescue @ 12-8 lbs./A. The goal was to increase the initial number of plants per square foot to maintain a higher % cover throughout the year.

Mean plant residue % (ground cover) in November 1995 showed Tall Fescue - 66.85 % A; Tall Fescue-Ryegrass - 65.05 % A; Orchard-Alfalfa-Ladino 54.8% B; Tetraploid intermediate ryegrass - 51.9% B. LSD=9.3326. Means with the same letter are not significantly different at .05 level. (Oswald 1997)

High levels of management are necessary to maintain compliance in the conservation farm plan.

- Species selection is the first step toward establishing a vigorous cover. Species must be suited to the soil and climatic conditions, fit the particular farm plan and crop rotation and endure heavy grazing and trampling.

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General Information

(Continued)

- Seeding rates higher than traditional recommendations may be needed to increase the number of plants/sq. ft.
- Stocking density is perhaps the greatest obstacle in maintaining cover and compliance. No more than 10 sows and litters per acre would be recommended. Have additional pasture to rotate depending upon crop, livestock or environmental conditions.

Most research work with hog pastures has historically dealt with nutrition and economics. Today's nutrient-dense diets and environmental concerns turn the focus toward **Conservation Compliance**.

Rearing swine on pasture has traditionally been a profitable low-cost alternative to the higher initial investment of confinement housing. As of January 1995, Farm Plans are to be fully implemented. Non-compliance means loss of programs/income available for the producer.

In order for intensive outdoor swine production to be profitable, sustainable and in compliance with USDA programs - producers must manage pastures carefully. Good planning should include: species selection, establishment, stocking rate, and environmental concerns.

Further study is needed to evaluate grasses under typical farm conditions. Pork producers and government agencies must continue to work together to achieve compliance in conservation farm plans under intensive management systems.

Recommendations

Since ryegrass is much more competitive in initial growth and the fescue is slower to establish, a mixture of 12 lbs. Tall fescue and 8 lbs. Ryegrass should be considered. This would also reduce the seed cost per acre. Diploid cultivars of ryegrass are more vigorous in growth and tiller production than tetraploids. More winter hardiness may be exhibited in northern areas.

Producers need to be aware of livestock-plant relationships such as fescue endophyte fungus, fescue foot, bovine fat necrosis and the forage management necessary to prevent these problems in ruminants. Low endophyte varieties are available but not as persistent as infected varieties. Ergot control by controlled grazing or clipping can keep grasses vegetative and more productive while keeping livestock healthy.

Forages for Swine

For decades, forage crops were an essential part of a swine feeding program. The development of synthetic vitamins in the 1950's and the shift toward confinement production systems reduced the use of forages in the swine diet. Today, most producers rely upon complex fortified diets to maintain optimum growth and production.

High-quality forages can still be utilized to simplify the feeding and management of the breeding herd. Sows, for example, can be fed less often with a smaller amount of concentrate when fed high-quality forages. Honeyman and Roush, Iowa State University, showed a feed cost reduction of over \$3.00/gilt in a 56-day gestation trial grazing alfalfa. Sows may be more content when fed diets containing a significant amount of forage compared to limit-fed sows.

Some negatives are also connected to feeding forages such as the seasonal availability of pastures, and the low dry matter content of the feed. Contamination of pastures by parasites and/or bacteria are potential problems in nonrotated outdoor systems. Hogs maintained outside have a higher energy requirement due to exercise and weather-related stresses. This may require more feed and cause slower gains and less efficiency.

The legumes, alfalfa, red clover and ladino clover have been included in hog pasture mixes because of the high protein content (14-22%) depending upon the maturity. The fiber content is in the 25 to 30% range. Legumes provide energy in the range of 900 to

1200 Kcal./lb. Legumes are also very palatable and seem to be more acceptable than grasses to the hogs. Grasses are normally seeded with legumes because of their ability to prevent soil erosion. They provide less protein, with similar energy and fiber amounts. Plant species selected for hog pasture must be adapted to the soil and climatic conditions. They must also fit satisfactorily into the crop rotation, be palatable, and yet have good ground cover potential.

They must have the ability to endure trampling and grazing. Different grazing intensities may change the morphology of plant growth. Animals may also affect pasture species composition. Pasture should have a high carrying capacity but not be overgrazed. Reduced leaf area would tend to increase erosion potential. In Northwestern Illinois, many producers are using farrowing pastures that are about two and one-half acres in size for 25 sows.

There is probably no perfect forage crop for swine pastures that combines nutrition, palatability, yield, length of grazing season, as well as conservation use. Alfalfa (*medicago sativa* L.) is generally considered the number one forage for swine. Alfalfa is the basis for most forage mixtures in Northwestern Illinois. Other legumes suited to swine are ladino (white clover) (*Tribolium repens* L.) and red clover (*Trifolium pratense* L.) These legumes are not ready for pasturing as early in the spring and do not yield as much as alfalfa. Assuming good drainage and adequate fertility, alfalfa is the highest protein producer of all legumes, is more resistant to diseases than red clover, and is more drought resistant due to its deep root system.

Smooth brome grass (*Bromus inermis* L.), a sod-forming perennial, is often used with alfalfa. Orchardgrass (*Dactylis glomerata* L.), a cool-season bunchgrass, matches well with the life cycle of alfalfa. Growth begins in the early spring and is heavy yielding with nitrogen fertilization. It produces well under high summer temperatures and all of its regrowth is vegetative. Orchard grass will grow on a wider range of soil types with slightly lower fertility than will smooth brome grass.

Timothy (*Phleum pratense* L.) is considered a short-lived perennial bunch grass. Timothy is considered less valuable as a forage for swine because it is not a sod-forming species and cannot withstand heavy use.

Summer annuals may be used for additional pastures. Sudan grass is palatable when seeded thickly and provides forage during the hot part of the growing season. The early growth of Sudan contains a cyanogen that can be converted to prussic acid, which can be toxic to pigs. It is safe for grazing after it reaches 18 to 24 inches in height. Pearl millet, an annual, also provides hot season growth without the potential of prussic acid. Brassicas such as Rape, Kale, and Swede can provide high energy in a palatable form. However, Rape can lead to photosensitization (sunburning) in white-skinned pigs.

Summary Forages can be used successfully in pork production. Because of their low-energy density and high fiber content, they should be used only to a limited extent for young pigs. Forages are best utilized at an early stage of maturity. Forages may be used to reduce both grain and protein costs. Both the pasture and the forage crop must be well managed to provide optimum feed savings.

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