Planting Oat in South Dakota

BROOKINGS, S.D. - South Dakota is a leading oat producer in the United States. In 2014, 9.3 million bushels of grain were harvested from 100,000 acres according to the USDA-National Agricultural Statistics Service. "Oat is generally grown for grain and forage, and only spring type oat is adapted in South Dakota," said David Karki, SDSU Extension Agronomy Field Specialist. "Oat is a cool season crop that responds well in cooler climates." Karki said planting is recommended early in the spring or as soon as the ground can be worked. Minimum germination temperatures are about 35 Fahrenheit. "However, slightly higher soil temperature can speed-up germination and emergence," Karki said.

"Planting early provides cooler climate for maximum tiller and panicle production. This practice also helps avoid high temperature stress during seed fill which can lead to smaller seed size." Optimum seeding dates for oat in South Dakota can range from late March to late April (south to north).

Producing a successful crop starts with variety selection

Karki said certified seed usually assures a crop with desired yield, quality and other agronomic characteristics. "In addition to yield and quality, improved varieties also possess tolerance to common diseases and pests," he said. Performance of common varieties and advanced breeding lines can be found by checking out the Oat Variety Trial Results at iGrow.org. Seeding rates for grain production can vary from 2 to 2.5 bushels per acre depending upon the seed size. Rate can be marginally increased if seeding deep, late or into a rough seedbed.

"On the other hand, seed rate can be slightly decreased if planting in low moisture ground," Karki said. Similar seeding rates can be used for forage production (cultivar may differ). Recommended seeding depths are 1.5 to 2.5; seeding deeper than 2.5 inches may lead to significant stand reduction.

When making a fertility management plan, Karki strongly recommends a fall soil test and nitrogen (N) credit from the previous crop. "This may vary depending on the yield goal," he said. "For instance, to grow 100 bushel per acre oat, recommended N is: 1.3 x 100 (yield goal) - STN (soil test N) - LC (legume credit)," he said. For fields grown to soybeans in the previous season 40 pound N per acre are credited. To learn more, visit iGrow.org or contact Karki at, david.karki@sdstate.edu or 605-882-5140.

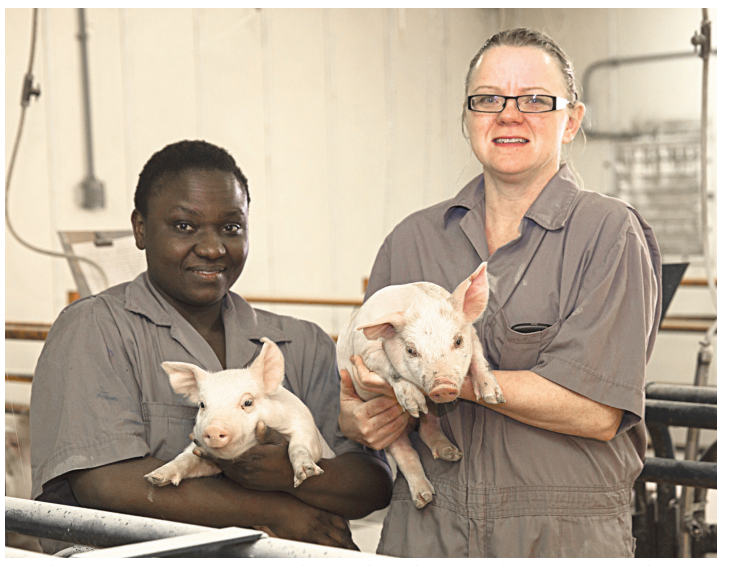
Tailoring sow's diet to nutritional needs may lead to healthier piglets

BROOKINGS, S.D. - March 20, 2015 - Fulfilling a sow's increased nutritional needs in the last trimester may lead to greater productivity for both the mother and her piglets, according to assistant professor Crystal Levesque of the South Dakota State University Department of Animal Science.

During her doctoral research at the University of Alberta, the pig nutritionist found that a sow's protein requirement in late pregnancy was substantially higher than in early pregnancy. The bulk of piglet growth takes place in the final trimester, she explained. In 2012, the National Research Council developed nutritional models for gestating and lactating sows, but Levesque said, "those models are based on very little data." Phase feeding is used to meet the changing nutritional requirements of nursery and growing pigs, but gestation barns are not designed for feeding multiple diets, according to Levesque. Consequently, the solution thus far has been simply to increase or bump up the sow's feed ration. However, she pointed out, the question remains whether phase feeding a diet formulated especially to meet a sow's changing gestational needs would produce a better outcome.

Impacting maternal health

A gilt is bred when she reaches 210 days of age and 300 pounds, depending on her genetics, Levesque explained. However, her body will not reach full maturity until she has borne three litters. "The hierarchy of nutrient demand shifts during late gestation," she said. "The developing fetuses become the primary target for dietary nutrients and the sow takes what's left over." Once the piglets are born, milk production in the first week or so generally requires more feed than the sow can consume, Levesque explained. That means that a sow that goes into lactation at a low body condition will become even more nutritionally deficient. A young sow also needs to be able to develop her own body as well as support growing fetuses and then nursing piglets, she added. "Then five days after the piglets are weaned, she is expected to cycle again."



South Dakota State University doctoral student Agatha Ampaire and assistant professor Crystal Levesque hold three-week-old piglets that are approximately 10 pounds each. Through a pilot project, they are comparing bump feed and phase feeding of sow in gestations to evaluate whether a diet specially formulated for changing gestational needs will improve performance of the sow and her offspring.

Increasing piglet survivability

In a 30-sow pilot study comparing bump feeding and stage feeding, Levesque has found "fairly clear preliminary evidence that we're impacting at least piglet survivability in the first week post-weaning." Doctoral student Agatha Ampaire is working on the Agricultural Experiment Station project. The research is supported through a combination of U.S. Department of Agriculture National Institute of Food and Agriculture Hatch funds, matched with state of South Dakota funds allocated through the South Dakota Board of Regents. As the number of pigs per litter increases, the variability of birth weight gets higher, resulting in more lightweight piglets, Levesque explained. Altering the diet is good for the sow, but she pointed out "ultimately what we get paid for is the piglet she produces. Can we develop a stronger, more vigorous piglet that is more likely to survive?" According to 2014 National Pork Board statistics, the average preweaning mortality rate is 17.3 percent, Levesque

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