Perkins County farmer Dennis Demmel is among workshop speakers. Pre-registration is due Nov. 27.

Speakers from Nebraska and North Dakota will share their expertise in integrating crop and livestock enterprises, and provide advice about strengthening an operation and reducing risk, at the Annual Western Sustainable Ag Crops and Livestock Conference set for Dec. 1 at Ogallala at the Quality Inn, 201 Chuckwagon Road, from 8:45 a.m. until 3:45 p.m.

Pre-registration is due by Nov. 27. To download a brochure and registration form, go to http://www.ckb.unl.edu. For more information about the conference or exhibitor booths, contact Extension Educator Karen DeBoer at the UNL Extension Office in Sidney; telephone 308-254-4455; email: kdeboer1@unl.edu.

Sponsors include University of Nebraska Extension, Nebraska Sustainable Agriculture Society (NSAS) and Organic Crop Improvement Association Nebraska Chapter 2.

Keynote speaker Ken Miller's topic is "Crop and Livestock Diversity to Improve Soil Health." Miller will relate his decades of experience in North Dakota with rotational grazing and use of cover crops, including cover crop "cocktail" blends.

Noon speaker William Powers, director of the Nebraska Sustainable Ag Society based in Lincoln, will discuss the National Young Farmers Coalition and Farm to School Program. Attendees also will have an opportunity to browse booths and displays set up by vendors.

Miller has a 2,000-acre ranch and farm operation along the Missouri River about 25 miles south of Mandan. The operation includes 350 acres of cropland, both irrigated and dryland. He grazes cow-calf pairs, both custom and a herd that he owns.

Average precipitation is about 15 inches. Miller describes the usual pattern as an occasional year of good precipitation and yields, with several break-even years with average precipitation and seven years in 10 of drought and potential income loss.

He has used a rotational grazing system since the mid-1980s, dividing his pastures into smaller paddocks, each with a water supply, and moving the cattle from one paddock to another more frequently than a traditional rotation.

His motivation? "I was going broke farming, getting bigger and bigger, leasing more, but growing broke faster," he said. "I figured if I can take the land I have and improve it instead of getting so huge, it also helps take care of the soil."

Rotational grazing allowed him to double his stocking rate and grow three times the amount of grass as before. On his cropland, Miller began using no-till methods and protecting the ground with cover crops following harvest, such as barley and winter triticale. Cover crops not only protect the soil surface from evaporation during droughts, he said, but "the biggest benefit is underground." The root growth helps build soils and improve soil health, enabling the land to tolerate drought more easily than conventionally tilled land without a protected surface.

Miller has expanded his use of cover crops to "cocktail" blends of several crops and also from the post-harvest period to full season. For example, a field might be planted to small grain the first year. A cover crop would be seeded after harvest, then the following spring a full-season mix would be planted. The mix could be hayed during the summer and then grazed later in the season, extending into the winter.

Miller said one of his management goals is to try to imitate native range, with a lot of plant diversity instead of a monoculture. He says he has seen improvement in the soil. Earthworms, a sign of healthy soil, have begun appearing. Organic matter, which was estimated at 8 to 10 percent in native soils but depleted to 1 percent or lower, has recovered to 3 to 4 percent in some cases.

Miller was hired by the Burleigh County Soil Conservation District to work with farmers and ranchers interested in intensive grazing and managing crop diversity with cover crops.

Other workshop topics at the Sustainable Ag conference include:

Organic Transition - The Rewards and Challenges: Dennis Demmel, an organic farmer from Ogallala, will discuss making the transition to an organic farming system: how to keep records, market, what capital investments are needed for bins, weed control strategies, crop rotations and benefits of integrating livestock through partnerships.

Buffalo and Sprouts - Diversify Your Farm to Weather Changes in Markets: Mark and Ila Tiensvold of Tiensvold Farms, Rushville, a buffalo farm, will focus on how they care for the environment in their operation, which evolved from organic farming into a seed supply company and direct marketing of grass-finished buffalo.

REAP Program and Starting a Small Business: Jerry Terwilliger, Center for Rural Affairs, Panhandle REAP Loan Specialist based at Morrill, will explain how those thinking of starting or who already operate a small business in Nebraska can turn to the REAP program for help to create a business plan, research potential markets and marketing ideas, discuss management issues with experienced business specialists and apply for a small business loan.

Cultivating Seeds, Reviving Agriculture: Beth Everett and Nathan Corymb, CSA and Vegetable Seed Saving, Scottsbluff, will discuss the importance of cultivating seed and what it takes to grow seed based on their experience with vegetable seed, including isolation, population, selection and threshing. They will also discuss how to fit seed growing into a farm operation.

The afternoon agenda includes several farmer roundtable discussions:

How to use Cover Crops in Western Nebraska: Moderator, Ken Miller

Starting a Small Business and Working with Alternative Markets: Moderator, Jerry Terwilliger

Drought Strategies for Crops and Livestock: Moderator, Doug Anderson, UNL Extension Educator, Ogallala.