THE SAMUEL ROBERTS NOBLE FOUNDATION

AG News and Views

Originally published November 2013

SOILS

Crop rotation yields many benefits

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As winter pasture planting is completed, we need to think about future cropping system plans. Growing the same crop year after year is considered to be monocropping. Crop rotation is a systematic approach in which different crops are cultivated in a sequence that varies from year to year, as well as from season to season within a year. One of the primary reasons producers continue to practice a monoculture cropping system could be due to lack of proper equipment to handle crop rotation. Recent improvements in crop genetics have made it possible to incorporate crops that have similar equipment needs, with or without minimal adjustments.

Producers who are not currently using crop rotation in their management plan may consider adopting it as a way to reduce some production issues and to introduce sustainable farming practices. To reap the benefits of crop rotation, producers should take a holistic approach. The effects of crop rotation can be experienced in several different aspects of production.

Weed control

Integrating both broadleaf and grass crops into a rotation will help in utilizing various herbicides with different modes of action at different times of the year, which will better control some of the problem weeds. Rotations using only Roundup Ready crops may not be an option, as regular use of Roundup can cause some Roundup-resistant weed problems. Introducing crops that are not Roundup Ready will play an important role in the control of weeds.

Disease and insect control

Crops that are from the same family tend to have similar disease and insect problems. A rotation using crops from different families will reduce the buildup of insects and diseases pertaining to that crop by breaking the life cycle of those pests.

Improvement in soil health

Alternating a deep-rooted broadleaf with a shallow-rooted grass species will help in mining nutrients from different layers of the soil. Rotation helps reduce compaction by loosening subsurface soil. Rotation can improve soil structure, aeration and drainage, particularly with deep-rooted taproot crops. Rotation involving crops with higher crop residue can reduce surface crusting and water runoff, thereby improving soil moisture content for the succeeding crop. Cover crops that are legumes will have the same benefits of weed, insect and disease control, as well as improve fertility of soil by nitrogen fixation. Cover crops will also act as a barrier to reduce wind and water erosion.

Improvement in crop yields

Yields are higher when a crop different than the preceding crop is grown. Research has shown that, even with the same fertility levels, significant positive yield differences can be achieved through rotation.

Recreation

Some of the crops in a rotation have the potential to generate income through recreational use. Crops like grain sorghum, sunflower and browntop millet are some options to attract birds for hunting.

Crop rotations can be two, three, four or more years. Having a longer crop rotation interval is better than a short crop rotation interval. Having the same double-crop year in and year out will not be beneficial if the same crops are grown in the same season every year; this is not considered to be crop rotation. But double cropping can be integrated into a crop rotation if the current management plan has the same

single crop every year. Canola, corn, alfalfa, sesame, soybeans, cotton, sunflower, chickpeas, forage sorghum, grain sorghum, pear millet and teff are some of the crops that can be employed in a crop rotation in the Southern Great Plains. Some of the crop rotations can include a cover crop or a fallow period when no crop is grown.

Crop rotation is not a one-size-fits-all formula. It is dependent on producer needs, farm size, equipment availability, field conditions and market availability. Choose a rotational plan that fits your budget and the operational plan specific to your fields and region. ■