

Cool-season grasses more profitable than warm-season grasses

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Access to swine effluent or waste water can help a producer grow more grass. But a Texas AgriLife Researcher says the grass is "greener" economically if it is a cool-season rather than a warm-season variety.

Dr. Seong Park, AgriLife Research economist in Vernon, said while the warm-season grasses appear to have a greater growth boost with swine effluent application, the cool-season grasses have marketing advantages that make it a more viable economic option for producers in the Oklahoma Panhandle and Southern Plains.

Park recently had the results of his study published in the Journal of American Society of Farm Manager and Rural Appraisal. The study was funded by a U.S. Department of Agriculture grant for "Comprehensive Animal Waste Systems in Semiarid Ecosystems." Cooperators in the study were Dr. Jeffrey Vitale and Dr. Jeffory Hattey, both with Oklahoma State University.

The study evaluated the risk and economics of intensive forage production systems under four alternative types of forage and two alternative nitrogen sources, he said. The results will help [farmers](#) make better informed production decisions.

The study compared two cool-season grasses — orchard grass and wheatgrass — with two warm-season grasses — Bermuda grass and buffalo grass, he said. The two nitrogen sources used to fertilize the crop were urea or swine effluent.

Park said their model showed that intensified production of cool-season grasses with the application of fertilizer appeared to be the more economically viable option for producers in the Southern Plains.

This, in part, was due to seasonal constraints on [forage production](#) which drive up prices of cool-season grasses, he said, providing better marketing opportunities than warm-season grasses.

When combined with lower production costs and more stable yields, cool-season grasses have higher returns and less risk than warm-season grasses, which often have negative returns, Park said.

The average economic return of the cool-season grasses was \$274.17 per acre, which was considerably higher than the warm-season grasses average return of \$36.64 per acre, he said.

"This is an interesting result, since the dry matter yields of warm-season grasses were found to be significantly higher in the field trials than those of the cool-season grasses," Park said.

The difference between yield and economic performance can be explained by both the higher market prices and lower variable costs of the cool-season grasses that compensated for the lower yields, he said.

When it came to the comparison of swine effluent and urea, Park said the swine effluent generated significantly greater returns when applied on the warm-season grasses but provided no growth advantage over urea on the cool-season grasses.

All the grasses respond to higher fertilizer levels, he said. However, the economic model showed urea applications beyond 150 pounds per acre would never be economically efficient due to declining product value at a higher rate.

For swine effluent however, the economic model suggests that higher fertilizer levels could generate higher returns since the marginal-value product has not yet decreased, Park said.

At such higher fertilizer levels, it is possible that swine effluent could result in significantly higher dry matter yields than urea, he said.

Based on average economic returns, the economic model was not able to provide a single best alternative, but it was able to conclude that cool-season grasses perform better than warm-season grasses, Park said.

Four alternatives from the cool-season grasses emerge as generating the highest economic return. These include orchard grass applied with 450 pounds per acre of swine effluent, orchard [grass](#) applied with 50 pounds of urea, wheatgrass applied with 450 pounds of swine effluent and wheatgrass applied with 50 pounds of urea.

While there were slight differences in economic returns between them, ranging between \$297.19 and \$305.03 per acre, the differences were not significant, Park said.

The performance ranking of each forage species was, however, dependent on the decision maker's attitude toward risk, Park said. Urea was found to have less risk than swine effluent and would be the preferred choice for even modestly risk-averse producers.

Future research will be required to explore different types of warm- and cool-season forages to identify a wider range of options for producers, he said.

"This should include investigating other types of management options including herbicides, integration into crop rotations and other types of animal manure, particularly beef," Park said. "This could also provide

solutions to producers from a wider range of farming systems beyond the Oklahoma Panhandle and Southern Plains."

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