SRINIVAS RAO (K9935-1)

An excellent livestock feed, pigeonpea can fill in the gap from July through late November, when other forages are not available. Here, a PBNA dwarf, late-maturing pigeonpea line flourishes 105 days after seeding.

Pigeonpea Benefits Cattle on the Range

Livestock producers across the Great Plains could have the benefits of nutritious forages year round thanks in part to pigeonpea, *Cajanus cajan*.

Pigeonpea is a summer legume with excellent drought tolerance. It is used extensively in Asia for human food and livestock feed. The crop ranks sixth in the world in dryland legume production.

Agricultural Research Service scientists, led by agronomist Srinivas C. Rao at the Grazinglands Research Laboratory in El Reno, Oklahoma, found that pigeonpea has the potential to fill the late summer/fall gap in forage availability.

"A basic goal of all grazing programs is to provide high-quality forage year-round, reducing costs of harvesting and storing forage or purchasing concentrate feeds for use when green forage can't be grown," says Rao. "No single crop can provide forage year round, so we're seeking new forage species that can grow when traditional ones aren't productive."

The primary forage resources for livestock production in the Great Plains are winter wheat during early winter and spring and perennial grasses during late spring and summer.

But high-quality forage is often unavailable from late July through late November, because the quality and quantity of the grasses decline and winter wheat forage is not yet available.

To determine whether pigeonpea could fill this void, Rao and his colleagues conducted field studies of the legume during the summer fallow period—June to September—in a continuous winter wheat production system at the El Reno laboratory. ARS scientists evaluated seasonal forage production patterns, yields, and qualities of three pigeonpea ecotypes—ICP8151, ICPX910007, and PBNA—obtained from the germplasm collection at the International Crops Research Institute for the Semi-Arid Tropics in India.

Pigeonpea forage yields were greater than those from grasses and other legumes, ranging from 1,000 pounds of dry matter per acre in July to 11,300 pounds per acre in the first week of October. Nitrogen content and dry matter digestibility also compared favorably with other alternatives.

The pigeonpeas used in the studies have medium to long growing seasons and flower in 180 to 220 days. Pigeonpeas lose their leaves in fall with the first freezing temperatures.

Pigeonpea yields and nutritive values during the summer fallow period equaled or exceeded those of other forage crops reported for this region. Potential benefits to farmers include lowered costs of livestock production, improvements in soil fertility associated with the nitrogen-fixing capabilities of this productive legume, and reduced vulnerability of soils to erosion by wind and water during the summer fallow period.—By **Jennifer Arnold,** formerly with ARS.

This work is part of Rangeland, Pasture, and Forages, an ARS National Program (#205) described on the World Wide Web at http://www.nps.ars.usda.gov.

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