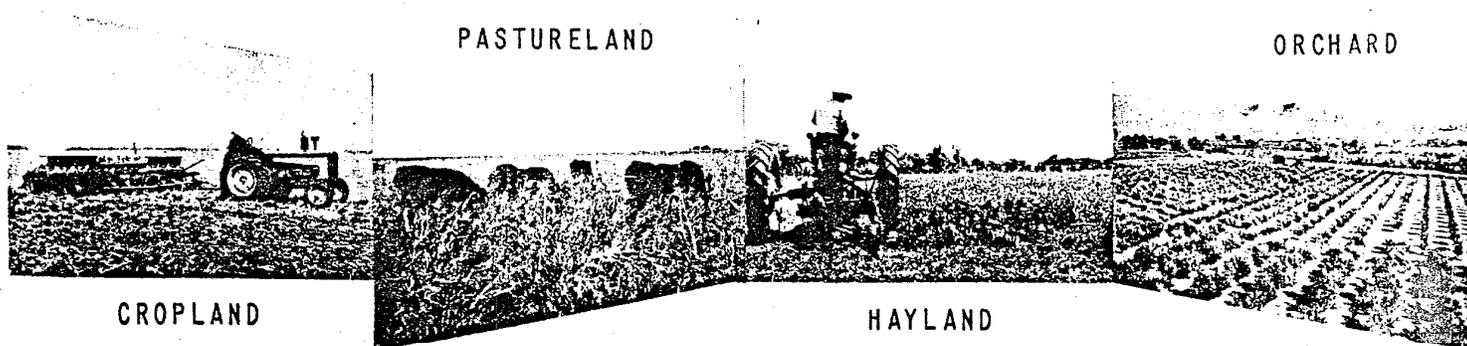


CONSERVATION AGRONOMY TECHNICAL NOTES



U. S. DEPARTMENT OF AGRICULTURE

NEW MEXICO

SOIL CONSERVATION SERVICE

AGRONOMY TECH NOTE NO. 34

RE: ANNUAL KOCHIA GRAZING PROBLEMS

Attached is a recent news release from New Mexico State University which discusses problems resulting from grazing annual kochia.

Since many of you have cooperators who might consider kochia as a high yielding pasture, we felt you should be aware of some of the problems which they could encounter.

The news release is forwarded in case your local paper did not run the item or in case you did not see it in the paper.

AC
DC
WNTC, Portland, OR
Dir., Ecol. Sci, SCS, Washington, DC - 2

Researchers Study Weed
For Forage Potential

LAS CRUCES -- A kochia test that looked promising in 1982 has been termed disastrous in 1983, according to researchers with the New Mexico State University Agricultural Experiment Station.

Known to many as burning brush, fireweed or ironweed, kochia is officially recognized as a noxious weed.

But it is also recognized as a potential forage for cattle and sheep.

Kochia is high yielding, water efficient, self-seeding and has no serious disease or insect problems, according to Dr. H. Dale Fuehring, an agronomist at the NMSU Agricultural Science Center at Clovis. Fuehring has done field and greenhouse studies on cultural and nutritional characteristics of kochia.

The problem with kochia as a forage, however, is that cattle pastured on it can encounter serious problems leading to weight losses and in severe cases even death.

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NEW MEXICO STATE UNIVERSITY

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In two years of pasture studies at the NMSU Agricultural Science Center at Tucumcari, cattle on a newly-established 90 percent kochia pasture lost an average of .7 pounds per head per day during the last three weeks of 105 days on kochia in 1982 and an average of 1.6 pounds per head per day during only three weeks on the pasture in 1983.

For the 1982 trial, 30 cattle from the NMSU Clayton Livestock Research Center were put on two pastures divided into eight sections for a seven-day rotation scheme in early June. They had no supplementation and researchers collected weekly forage and esophageal fistula samples.

Gain through the first 54 days was quite good, according to Dr. Herman Kiesling, an NMSU animal scientist. Cattle averaged 1.6 pounds gain per head per day during that period. For the following 28 days there was no average gain, and through the next 21 days cattle averaged losses of .7 pounds per head per day. At that point, the cattle were taken off the kochia pasture.

"We got concerned at the .7 pound losses, because that is an average figure for all the animals in the study. Some cattle lost considerably more than the average and some even weighed less than when the study was started," Kiesling explained.

One steer was sacrificed for pathological tests and three others died within two weeks after being taken off the kochia pasture.

The approach in 1983 was to divide the cattle into four groups. Group one was a control and received no supplement; group two received a mineral, free choice supplement with the

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main ingredient being calcium; group three received a grain mix supplement on the idea that cattle may need additional energy to utilize nutritional qualities in kochia; and group four received a grain and mineral supplement.

The cattle were started on the Tucumcari Science Center kochia pasture in late June, since a cold spring delayed forage production. Only three weeks into the study the cattle began to show serious weight losses. Average daily losses in the herd were 1.6 pounds per head per day.

"This was totally different from the year before," Kiesling observed. "Although the net result -- weight loss -- was the same, we didn't expect any losses so soon."

In another part of the 1983 study, some cattle were put on grass, others were put on kochia and a third group was put on a combination of native grass and kochia.

Those on the grass-only pasture averaged 1.8 pounds gain per head per day, while those on the kochia-only pasture lost more than 6 pounds per head per day. Those on a combination of grass and kochia had slight gains of .5 pounds per head per day.

Blood samples were made periodically through all studies so that researchers could look at nutritional parameters in the blood. According to Kiesling, the cattle were nutritionally sound, but there was an effect on liver enzymes.

In 1983, four parameters, or enzymes, in cattle livers were normal prior to the cattle being put on kochia, he said. After the cattle were on kochia, all four enzymes were elevated

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from slightly to five times above normal. After being on grass for two weeks, the enzymes were back in a normal range. In 1982, these enzymes were normal before the kochia tests and elevated after the cattle were on kochia pastures for 105 days.

"I think the cattles' livers are not able to function properly while the cattle are on kochia. Whatever causes this is not damaging because the enzymes come down quickly once cattle are taken off kochia," Kiesling said. "All evidence we have thus far points to the liver not functioning properly when cattle are on kochia diets."

In another phase of kochia research, sheep are being fed kochia hay. At this point, they don't seem to like it well enough to eat the quantity they need to gain weight, according to Kiesling.

The researcher said there may be no ill affects from kochia hay, as the hay-making process might change properties in kochia. "Right now, the problem we have is that kochia is unpalatable and the lambs just won't eat it straight," he said. To combat this, the kochia hay is being mixed with about one-eighth part alfalfa.

As in the pasture studies, researchers are doing digestibility research and blood assays.

Kiesling said studies with cattle on kochia will be continued in 1984. "We've experienced the two extremes -- from very promising to very toxic -- with kochia in two years. It will be interesting to see what will happen in the third year and work to determine what the toxic substance is," he said.