Forage Research Program Update – Pushing On

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As we begin another hay production season, we wish all of our New Mexico, and surrounding area, hay growers the best of luck for 2014. Maybe this year is the year we start to break this drought and Mother Nature starts to cooperate. Your persistence as hay producers, and survivors, is commendable especially during these trying times. We at NMSU want you to know that we are striving just as hard to develop and carry out the most beneficial and applicable research programs that will help mitigate the effects of the ongoing drought and water supply shortages.

Below is a summary of several of the research programs being conducted by NMSU faculty and staff. We encourage any and all of you to stop by one of the several NMSU Agricultural Science Centers throughout the state to take a look around and provide your input into our efforts. Please let us know how we are doing and what you’d like to see in the way of research. We hope to see you soon!
Alfalfa Variety Testing

In New Mexico, there are 6 locations that have ongoing alfalfa variety trials. These experiment station locations are: Alcalde, Artesia, Las Cruces, Los Lunas, Mora, and Tucumcari. The tests focus primarily on evaluating yields of the most recent alfalfa releases (including new lines developed by NMSU alfalfa breeder, Dr. Ian Ray) compared with older, more traditional varieties. In addition, these tests provide valuable information about which fall dormancy (FD) categories are best adapted to the different regions of New Mexico. Newly planted tests also include Roundup Ready® varieties, which are gaining interest across the state as a new weed control system to help combat tough weeds and to keep control costs down. Tests are planted every 3 years at each site, and varieties are compared for annual and average 3-year yields. New plantings for 2013 were at Mora (a new location), Los Lunas, and Artesia. Farmington and Las Cruces are slated for fall 2014 plantings. You can find results from the New Mexico alfalfa variety trials and more at http://aces.nmsu.edu/pubs/variety_trials/welcome.html.

Alfalfa Planting Date Studies

Due to the erratic precipitation patterns and inconsistent irrigation water availability in New Mexico, we feel it is necessary to evaluate alfalfa establishment at various times of the year to better match water availability and increase success at planting. Typical recommendations are to plant alfalfa in the late summer or fall (depending on location) when temperatures are cooling and weed control is easier. However, at many places in the state, irrigation water may not be available at that time. From a water perspective, spring or summer plantings would be more ideal. With the re-release of Roundup Ready alfalfa, broad-spectrum weed control capabilities and crop safety should allow for a wider planting window. What is uncertain is how mid-summer temperatures will affect establishment and subsequent stand productivity and persistence. As such, we have begun a series of planting date studies at the Tucumcari (2013) and Los Lunas (2014) science centers. Both locations are utilizing the Roundup Ready Alfalfa system. Both short-term (i.e., 1st year yields) and long-term effects on the stand will be evaluated.

Perennial Cereal Rye Study

At both Los Lunas and Tucumcari science centers, a relatively new crop and one with forage potential is being studied. Perennial cereal rye (PCR) is a small grain rye that was developed in Canada for use primarily as a forage crop. It is a cereal crop similar to wheat, but has the longevity of perennial grasses. The big benefit is that it can survive multiple years and may only have to be planted once every 3 to 4 years. What is uncertain is how well adapted it is to the oftentimes harsh growing conditions in New Mexico. If adapted, PCR could be used for any forage operation, but would most likely fit best into grazing situations. It could reduce establishment costs, extend grazing seasons, and provide multiple harvests during the year. Establishment, yields, forage quality, and stand longevity are being tested at the two NMSU sites. The PCR is being compared to commonly-used annual cereals such as wheat, rye, and triticale (a cross between wheat and rye that provides more winter growth than wheat and a longer grazing season than rye).

Perennial Forage Kochia Study

Interest continues and questions occasionally arise regarding Forage Kochia (Kochia prostrata). Is it adapted? Is it a good forage? How do we manage it? Where do we get seed? All of these questions have prompted research at the Tucumcari center. Forage Kochia is different from the aggressive weed, annual Kochia (Kochia scoparia), and is a non-invasive perennial shrub that can provide valuable forage for livestock in rangeland and possibly irrigated situations during late fall and early winter. It can provide highly palatable and high protein forage for both domestic livestock and wildlife at that time. Very little is known about Forage Kochia in New Mexico. A Forage Kochia trial was planted in mid-March of 2014 at
the Tucumcari center. A second planting will take place in mid-May in both disturbed rangeland and under irrigation. This study includes 4 varieties and will investigate planting dates and irrigation treatments. Forage Kochia is slow to establish and first results are not expected until after the 2015 growing season.

Teff Studies

Due to the mounting interest in drought tolerant forages and alternatives for use in limited water situations, research and observations with the crop, teff, will continue at Los Lunas and Tucumcari. Teff, is a warm-season annual that is relatively water- and fertilizer-use efficient and can produce large amounts of good quality hay in the summer. While teff has proven to be a great, highly palatable forage, especially for the small bale horse market, there are still some management questions that need to be answered. For instance, planting date is an area that needs more research in New Mexico and where much of our work will focus in 2014. Several different planting dates will be demonstrated at Los Lunas in 2014 to evaluate emergence/establishment, number of cuttings, yield, and forage quality. This will likely be duplicated at Tucumcari.

Winter Heifer Development

Ongoing studies at the Tucumcari science center focus on importance of heifer development. The center has two years of data on a winter heifer development project and one year on a summer grazing project for bred heifers. The winter project evaluates the impact of winter pasture (supplemented dormant native range or irrigated cereal forages) on the onset of puberty and breeding success. The summer project is comparing sorghum x sudangrass and pearl millet as pasture for bred heifers. This is a joint project with Eric Scholljegerdes in the NMSU Animal and Range Sciences Dept. Plans are to repeat the summer component in 2014.

Tepary Beans for Forage

Tepary bean (*Phaseolus acutifolius*) is a native bean used by Native Americans as a protein source. A study was initiated in 2013 at the Agricultural Science Center at Tucumcari to evaluate breeding lines of tepary beans as edible dry beans. Interest in this species’ value for forage has developed and a forage evaluation will be added in 2014.

Winter Irrigation/Summer Irrigation Termination Demonstration

Because the Tucumcari Science Center has treated municipal wastewater as a year round source of irrigation water, a demonstration of results from several past alfalfa irrigation studies at the center has been initiated on a stand of alfalfa planted in September 2012. Alfalfa irrigation management being demonstrated is: year round irrigation applying approximately 60 inches of water; irrigation beginning after the last harvest in November 2013 that will be terminated when 36 inches has been applied, which will probably be in early July; and irrigation to apply 36 inches throughout the growing season beginning in mid-April when canal water became available, still using treated wastewater as the source.

Results from these projects and more will be presented at Field Days (Tucumcari – Aug. 7 and Los Lunas – TBD) as well as being published through NMSU media and in scientific literature.

Look for an update from Dr. Ian Ray’s NMSU breeding program in a future issue of ‘Alfalfa Market News’.

For more information on forages in New Mexico, visit: [http://forages.nmsu.edu/](http://forages.nmsu.edu/)
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