Introduction
Section II – Forage Suitability Groups

This subsection contains forage suitability group (FSG) reports. A forage suitability group consists of one or more soil map unit components having similar potentials and limitations for forage production within the specified Major Land Resource Area (MLRA). The soils making up a FSG are sufficiently uniform to:

- support the same adapted forage plants under the same management conditions.
- have comparable potential productivity.
- require similar conservation treatment and management to produce adapted forages in optimum amounts and qualities.

All soil map unit components in the state will be placed in a forage suitability group, and a report will be prepared for each group. These are interpretive reports that provide the soil and plant science basis for planning individual tracts of grazed or mechanically harvested forage land. Each FSG report is organized into the following sections:

The first section identifies the group by a descriptive name and by a number that is unique to that group across the whole United States. It also identifies the Major Land Resource Area (MLRA) that the group occurs in.

The **Physiographic Features** section describes the types of landforms within the landscape occupied by the soil group. It serves to identify landscape factors that have a bearing on forage adaptation and management. For instance, a FSG's flooding or ponding frequency effects both plant adaptability and grazing or harvest management. Slope effects runoff, erosion, production potential, and forage management.

The **Climate Features** section describes the climate for the MLRA being represented. Information in this section is tailored for its applicability to forage production and management. As such it is not so much concerned with climatic averages as it is with probabilities. For example, it is more important to know that a forage variety will have 90% (9 years in 10) chance of escaping frost if it is planted after a certain date than it is to know that it has an average, (1 year in 2) chance.

The **Soil Interpretations** section lists the chemical and physical properties of the soils that impact forage plant adaptation, management, or production potential.

The **Adapted Species List** identifies forage species that are adapted to the landscape positions, climate conditions, and soil properties listed in the report. Not all the listed species have the same yield potential, and considerable differences exist in their management needs. Adapted species should be selected from those listed based on the needs and management goals of the landuser.

The **Production Estimates** section provides for a means to communicate the yield potential of several commonly grown forage crops and mixtures relative to each other within the FSG. Great care should be taken if these figures are used for estimating future forage yields.

The management steps taken by a forage producer to arrive at an ultimate forage yield occur in two interrelated phases. The first is the production phase in which the management (species selection, fertility, etc.) is geared towards growing the forage crop. The production estimates listed in the reports represent the results of this phase as total annual above ground plant production on an air-dry-matter basis. Estimates are provided for both high and low levels of production management intensity.

The second phase is harvest, during which management is geared towards removal of the forage crop either by mechanical means or grazing. Actual yields are dependent on the efficiency of the harvest management system employed. Careful consideration needs to go into choosing a harvest efficiency when estimating potential yields.

Mechanical harvest efficiency is generally higher than grazed efficiency. A 70% harvest efficiency for haying may be a reasonable figure to use. If total annual above ground production of a forage mixture were estimated to be 6000 lbs/ac., a 70% harvest efficiency would equate to 4200 lbs./ac., or 2.1 tons/ac.

Grazing efficiency is highly dependent on the grazing management system employed. Continuous, season long grazing at low stocking densities may result in a harvest efficiency of only 25%. 25% of our 6000 lbs. annual production equates to 1500 lbs. of forage consumed. This can be converted to Animal Unit Months (AUMs) by dividing by 913. In this case the estimated grazing yield would be 1.6 AUMs/ac.

By employing a grazing system that resulted in a 45% harvest efficiency the 6000 lbs. of total annual production would result in a grazing yield of 2.9 AUMs/ac.

Harvest management, especially grazing management, strongly impacts forage plant growth and total annual production because of its affects on plant vigor. This inter-relationship of production management and harvest management results in a wide range of yield potentials from the same forage crop grown on the same soil. Therefore, the production estimates provided in the FSG reports should only be used for broad planning purposes. Site specific conservation planning must include consideration of the inter-relationship of forage production and forage harvest management when predicting an individual's yields.

The **Forage Growth Curves** section estimates the seasonal distribution of growth of the various forage crops. They are valuable as management tools for predicting mechanical harvest dates, and for identifying periods of forage surplus or deficit during the grazing season.

The **Soil Limitations** section identifies soil and/or landscape factors that adversely effect forage production or impact management flexibility.

The **Management Interpretations** section suggests management strategies that may be employed to mitigate the impacts of the soil limitations.

The **FSG Documentation** section lists similar FSGs that resemble or may be confused with the current FSG, and notes the differences between them. References used for assembling the FSG data are listed.