

**Plant Resource Enhancement Activity PLT10- Intensive Management of Rotational Grazing**

Intensive Rotational Grazing (IRG) requires more labor and decision making than a deferred grazing system. IRG is used when increasing animal production is an objective. The IRG system is managed to produce high quality, nutritious forage and maintain plant health and vigor.

Management of the forage vegetation to provide sufficient forage intake for the livestock and sufficient post grazing residual vegetative material for the plants to recover involves the use of multiple grazing paddocks. Refer to the conservation practice Prescribed Grazing (528) conservation sheet, Grazing Technical Note #3 Designing a Prescribed Grazing System, and the Grazing Calculator to determine livestock forage demand, estimated forage supply and acres needed for grazing or browsing.

The number of paddocks needed is calculated based upon the expected livestock forage intake rate, the grazing period, and the length of the forage recovery period. On average, livestock consumer 2-3 % of their body weight daily. Use 3% as the intake rate to plan for daily feed, however, high producing stock such as lactating cows, should use 4% as an intake rate.

IRG requires short grazing periods in order to provide high quality forage in every bite. Grazing periods that are kept as short as practical with adequate recovery periods will minimize the opportunity for livestock to re-graze plants. **Table 1** lists the recommended grazing period by livestock type and class to be used in paddock size calculations.

Livestock Type and Class	Grazing Period Length in days	
	Maximum	Preferred
Dairy, lactating cows	1	0.5
Dairy, dry cows, springing heifers, growing heifers	3	1
Dairy, calves	5	3
Dairy, growing steers, bulls	3	
Beef, lactating cow with calf	3	1
Beef, dry cow, growing heifer or steer	3	
Beef, calves < 1 year of age, bulls	5	3
Horse, pony, mule, donkey	5	3
Goats, doe with kids, mature stock	5	3
Goats, kids < 1 year of age	5	
Sheep, ewes with 2 lambs, dry ewes, mature stock	3	
Sheep, growing	3	
Sheep, lambs <1year of age	5	3
Llama, Alpaca, camelids	5	3
Deer, Elk, cervids	7	
Turkey, Chicken free range or following other stock	5	
<b>Riparian paddocks, any livestock</b>	1	

The greater the number of paddocks in a system, the more efficiently the animals will utilize the forages available. The more often livestock are moved to fresh paddocks, the more uniform the quality and quantity of feed on off and thus intake rates will be higher. IRG systems should be planned around having enough forage available to meet DM demand during the periods of least forage growth. **Table 2** provides the number of paddocks recommended based on grazing period length.

<b>TABLE 2. MINIMUM NUMBER OF PADDOCKS</b>					
<b>30 day recovery</b>					
<b>Grazing Days</b>	<b>0.5</b>	<b>1</b>	<b>3</b>	<b>5</b>	<b>7</b>
<b>Paddocks Needed</b>	60 Or 31 subdivided per milking	31	11	7	5
<b>45 day recovery for warm season grasses or riparian paddocks</b>					
<b>Paddocks Needed</b>	90	46	16	10	7

Grazing intensity is measured as the amount of forage mass removed from a plant or pasture during a grazing event. The greater the difference between pre-grazed and post-grazed plant height, the greater the grazing intensity. Intensity of forage utilization in an IRG system is planned to be 50%. **Table 3** provides plant height ranges based on 50% utilization. Managers will monitor plant height in current paddock, next paddock in rotation, and previous paddock to assess when and where to move livestock. Grazing records should document the date, paddock, and animal number and forage plant heights.

The first time a pasture is grazed in the spring should occur long before forage reaches the heights in Table 3. After green up of the forage and when soil moisture conditions are dry enough to support the livestock without damaging the plants, grazing should begin when new spring growth reaches 3 inches in height and stop when the forage has been grazed down to a residual height of 1.5 inches. Grazing at this intensity in the spring keeps paddocks from getting too mature too fast. Table 3 grazing heights should then be followed for subsequent grazings.

<b>TABLE 3. TARGET HEIGHTS OF PASTURE FORAGE IN INCHES</b>			
<b>Species</b>	<b>Begin Grazing</b>	<b>End Grazing</b>	<b>Overwinter</b>
Kentucky Bluegrass	4-6	2-3	3
Orchardgrass	8-10	4-5	8
Perennial Ryegrass, other non-jointed grasses	6-8	3-4	4
Tall Fescue, endophyte free, novel or friendly endophyte	8-10	3-4	6
Smooth Bromegrass	10-20	4-6	8
Timothy, Reed Canarygrass, other jointed grasses	6-8	3-4	5-6
Big Bluestem, Indiangrass, Switchgrass	12-18	8	8-12
Eastern Gamagrass	12-18	6-8	12
Alfalfa	8-12	3	8

<b>TABLE 3. TARGET HEIGHTS OF PASTURE FORAGE IN INCHES</b>			
<b>Species</b>	<b>Begin Grazing</b>	<b>End Grazing</b>	<b>Overwinter</b>
Alfalfa grass mix	8	3	8
Birdsfoot trefoil	10-12	5-6	6
Birdsfoot trefoil grass mix	7	4	6
White clovers	6-10	3	6
White clover grass mix	7	3	8
Red clovers, Alsike clover	8-12	3-4	8
White Dutch clover	4	2	4

The IRG system must also ensure that plants are left in condition to survive the winter or dormant periods of the year. Table 3 includes minimum heights to which forages should regrow prior to the first killing frost.

Refer to conservation practice Water Facility 614 to determine the quantity of water to provide for livestock. Water should be accessible to every paddock; however, not every paddock needs a separate stock tank. IRG systems may have lanes leading to a watering facility, seasonally used portable tanks or stock tanks shared between paddocks. The most important consideration for high production stock, whether milk, meat or fiber, is that water is accessible within 800 feet. For lactating dairy cows, it is preferable to have water accessible within 300 feet. The watering system type and location will depend on the intended class of livestock and the manager's production goals.