

Watershed Agricultural Program  
Delaware County

**SQUANI**  
**BMPs #33, 34, 35, & 36**  
**Prescribed Grazing**  
**Home Farm – feeders (BMP #33); Davis Road – cow/calf (BMP #35);**  
**Elk Creek – weanlings (BMP #34) & “odd lots” (BMP # 36)**

NYC-DEC-289-33,34,35,36



I have reviewed this management plan. The plan has been explained to me fully, and I agree with all aspects therein.

Landowners Approval \_\_\_\_\_ Date \_\_\_\_\_

Designed By \_\_\_\_\_ Date \_\_\_\_\_

Checked By \_\_\_\_\_ Date \_\_\_\_\_

Approved By \_\_\_\_\_ Date \_\_\_\_\_







UNITED STATES DEPARTMENT OF AGRICULTURE

NY Prescribed Grazing Plan-

Rotational Stocking Method

Date	April 4, 2018
County	Delaware
Planner	Dan Vredenburg
Job Title	Conservation Planner

Landowner/Operator	Ron Cieri/Jim Ingram (Davis/Home)	
E-Mail	cieriron87@yahoo.com	
Phone Number(s)		
Home/Cell	607-746-8058	908-692-4349
Address		
Address	546 Ehlermann Rd.	
City, State, ZIP Code	Delhi, NY 13753	

Farm Name	SQUAN I, LLC
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Farm Location	Farmstead located at the end of Elhermann Rd. at intersection with Davis Rd. The farm itself spans several hundred acres primarily along/ between County Rt. 10 and Davis & Turnpike Roads.
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The purpose of this plan is to outline the necessary farm practices required for the establishment of a prescribed grazing management plan as a component of an integrated whole farm management system. This plan identifies the most appropriate stocking method, establishes an initial stocking rate and prescribes the frequency, intensity, timing and duration of grazing, browsing and/or mechanical harvest criteria to achieve the stated goals and resource management objectives. Recommended facilitating practices required to achieve the successful implementation of this plan are identified and criteria established.

Current Farm Status (NOTE: For paragraph break use ALT+ENTER.)

The SQUAN I, LLC is a grassfed beef farm located between Meredith and East Meredith in the Catskill Mountains of NY. The farm runs approximately 100 cow/calf pairs, most of which (~80) calve in the spring. The additional 20 or so cows are fall calving. In addition to the cow/calf herd, the farm has a group of 80+ weaned calves and 80+ pre-finish cattle. Both of these groups is usually bolstered to double that number by buying in animals from other farms. Cattle ready for finishing are moved to the neighboring Stonewall Pastures Farm. There is also a smaller group of cattle (bulls, cull animals, and odd sized cattle. The four groups of animals are grazed and housed at different locations on the farm. The cow/calf herd is managed on the "Davis Road" portion of the farm, grazed on ~180 acres and fed during the winter in a covered feed area constructed in 2014. The weaned calves and finish/pre-finished have historically been grazed on the "Home Farm" portion of the farm with the calves being housed at the "Elk Creek" barn and finished cattle housed at the Home Farm facilities. That has changed recently with new partnership with Stonewall Pastures. The plan moving forward will be to have the weanlings graze on the Elk Creek pastures, which have recently been expanded along with the smaller group of bulls, culls, & odd lots on a separate portion of the Elk Creek pasture (near/around where the barn is). The bulls/culls/od lots will also be housed at the Elk Creek barn. The pre-finish animals will continue to graze at the Home Farm. Both the weaned calves and pre-finish animals will be housed at the Home Farm facilities once a new covered feeding structure is constructed (scheduled for 2019).



**Current Farm Goals**

Raise quality grass-fed beef. Produce enough to satisfy customer(s) utilizing their farm's stock and cattle purchased from partnering farms. Manage pastures to provide the best summer feed possible and harvest high quality forage to feed livestock through the winter. Accomplish all goals in the most environmentally and animal friendly ways possible.

**Purpose of Plan**

Provide a guide to best utilize the pasture resources on the farm, as well as, outline alternate management strategies and show what the maximum carrying capacity of the pasture areas are.





UNITED STATES DEPARTMENT OF AGRICULTURE

Landowner/Operator	Ron Cieri/Jim Ingram (Davis/Home)
County	Delaware
Date	April 4, 2018
Approx. Grazing Season Dates	Central - April 30 - October 30

**A. RESOURCE DATA AND INVENTORY**

Livestock

Kind	Number	Livestock Class	Weight per Animal or Pair	Stocking Worksheet Number
Beef	100	Lactating	1600	1
Beef	80	Growing stock	700	2
Beef	280	Growing stock	700	3

Forage Base

Pasture	Grass Species	Condition	Legume Species	Condition	Other Species	Prevalence
1	native pasture	Poor	dutch clover	Poor	weeds/forbes	
2	native meadow	Good	red clover	Fair		
3	native pasture	Fair	misc clover	Poor		
4						

Hay	Grass Species	Condition	Legume Species	Condition	Other Species	Prevalence
1	native meadow	Good	native species	Fair		
2						
3						
4						

Other Land	Grass Species	Condition	Legume Species	Condition	Other Crop	Condition
1						
2						
3						
4						

**Land Resources**

**IMPORTANT NOTE:** List the four (4) most prevalent soil types under the specific corresponding worksheet number. If less than four (4) soil types, record the soil type with the greatest number of acres in #1, and equally split the acres of the secondary soil type in #2, #3 and #4. If only one (1) soil type, divide the total acreage by four and place equal values in #1, #2, #3 and #4.

Unless actual measured yields are available, use estimated yields from NRCS soils data available from the Web Soils Survey or Soil Data Viewer, New York Agricultural Land Classification data, or the Cornell University Species Selection Tool located at [www.forages.org](http://www.forages.org).

**Rotational Stocking Worksheet (1)**

	Soil Map Unit Symbol	Number of Acres	Forage Yield (tons/year)
1	excellent	0.0	3.5
2	good	40.0	3.0
3	fair	115.1	2.5
4	poor	26.0	2.0

**Rotational Stocking Worksheet (2)**

	Soil Map Unit Symbol	Number of Acres	Forage Yield (tons/year)
1	excellent	61.0	3.5
2	good	48.0	3.0
3	fair	75.2	2.5
4	poor	50.0	2.0

<b><u>TOTAL ACRES AVAILABLE:</u></b> 181.1	<b><u>% OF TOTAL ACRES THAT CAN BE HARVESTED MECHANICALLY:</u></b> 80	<b><u>TOTAL ACRES AVAILABLE:</u></b> 234.2	<b><u>% OF TOTAL ACRES THAT CAN BE HARVESTED MECHANICALLY:</u></b> 85
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**Rotational Stocking Worksheet (3)**

	Soil Map Unit Symbol	Number of Acres	Forage Yield (tons/year)
1	excellent	61.0	3.5
2	good	48.0	3.0
3	fair	75.2	2.5
4	poor	50.0	2.0

<b><u>TOTAL ACRES AVAILABLE:</u></b> 234.2	<b><u>% OF TOTAL ACRES THAT CAN BE HARVESTED MECHANICALLY:</u></b> 85
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**Infrastructure**

- Barnyard Access
- Laneways
- Access Routes
- Fence
- Water Supply

Acceptable As Is	Needs Improvement	Not Applicable
X	X	
X	X	X
X	X	
X	X	
X	X	
X	X	
X		
X		
X	X	
X	X	

Source and Location pond - gravity system, well, surface

- Environmental Risk
- Quantity
- Quality
- Distribution Capability
- Dispensing Capability

**Additional Resource Concerns**

- Air Quality/Wind
- Stream Crossings
- Cultural Resources
- Wildlife Concerns
- Existing Management System
- Shade
- Soil Nutrient Status (ph, N, P, K, S, ...)
- Other:

X		
X		
X		
X		
	X	
		X
	X	

- 1
- 2
- 3
- 4








UNITED STATES DEPARTMENT OF AGRICULTURE

Landowner/Operator **Ron Cieri/Jim Ingram (Davis/Horn)**  
 County **Delaware**  
 Date **April 4, 2018**

**B. WORKSHEET FOR USE WITH THE ROTATIONAL STOCKING METHOD**

**Step 1a. Estimate The Forage Demand**

The forage demand is the amount of forage dry matter (DM) required to feed a group of livestock for one day. It is calculated based on the rule of thumb that grazing animals require an amount of forage DM equal to about 2.5 to 3.5% of their body weight per day. For lactating animals use 3.5%, and growing stock use 3.0% of body weight. For all other classes of livestock, except equine and pigs, use 2.5% of body weight. For equine, use 5.0% to allow adequate exercise area - this is not the actual intake. For pigs, use 2.0% to allow for rooting behavior - this is not the actual intake. Do not adjust daily forage demand in step 1b. below for horses or pigs.

Average Weight/Animal	Lactation Status	Lbs/DM/Head/Day	# Animals	Forage Demand
1600	0.03	48	100	4800
0		0	0	0
0		0	0	0
0		0	0	0
<i>Unadjusted Daily Forage Demand=</i>				<b>4800</b>

**Step 1b. Adjust Daily Forage Demand**

Adjust Daily Forage Demand as a result of supplemental feed use by deducting the pounds of supplemental feeds on a dry matter basis from the daily forage demand: If supplemental forages are provided, they are substituted on a pound for pound basis. If supplemental grain is fed, the substitution rate is one pound of grain equals .5 pounds of forage. Use the table to the right "Typical Dry Matter Contents" to select a value or enter the farmer's estimated value. This step is primarily for dairy cattle, although beef cattle, sheep, and goats may be supplemented as well. Do not use for horses or pigs.

Forage type	% DM	Lbs. Forage As Fed	Lbs. Dry Matter Fed
			0.00
			0.00
			0.00
			0.00
<b>Total lbs forage DM supplemented</b>		<b>0.0</b>	<b>0.00</b>

*This is the Forage Supplement*

Grain type	% DM	Lbs. Grain As Fed	Lbs. Dry Matter Fed
High Moisture Grain			0.00
Grain - Meal or Pellets			0.00
<b>Total lbs. grain supplemented</b>		<b>0.0</b>	<b>0.00</b>

*This is the Grain Supplement*

Forage demand to be adjusted	4800	Total number of animals supplemented	0
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**<-- Note: These cells MUST be completed even if no supplement is fed.**

<b>Total Dry Matter Supplemented</b>	Forage + Grain Supplements =		0.00
Unadjusted Daily Forage Demand	<b>minus (-)</b>	Total Dry Matter Supplemented	<b>equals (=)</b>
4800		0.00	<b>4800.00</b>

*This is the Adjusted Daily Forage Demand*

Other groups unadjusted daily forage demand	<b>0.00</b>	4800.00	Total daily forage demand for all groups
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Pasture Intake % Total Intake	100.0
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**\*\*NOTE\*\*** All producers must have a minimum of 30% pasture intake as a percent of total intake.



**Step 2. Select Residency Period**

3.5	Days
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**\*\*NOTE\*\*** One half to 1-day residency periods are recommended for lactating dairy cows. Residency periods of 2 to 7 days may be used for all other livestock. To maximize harvest efficiency, use shorter residency periods. If the cell turns RED you must shorten the residency period.

**Step 3. Estimate the Forage Supply**

This is the amount of forage dry matter that is estimated to be available for grazing after a 15-day growth period in the spring and a 30-day growth period in the summer and fall.

Forage Availability Estimates

Hay Yield - Tons/DM/Acre/Year:	5.5	5	4.5	4	3.5	3	2.5
Forage Availability - Lbs/DM/Acre/Rotation	2200	2000	1800	1600	1400	1200	1000

**\*\*NOTE\*\*** These values are for planning purposes only. They reflect average yields for pastures rated EXCELLENT on the resource inventory and data page when growing conditions are not limiting, soil fertility is maintained to soil test recommendations, and pH is not less than 5.8. For pastures rated GOOD, reduce yield by 0.5 T/A; for pastures rated POOR, reduce yield by 1.0 T/A. Use the above table to convert hay yields in Tons/DM/Acre/Year to Forage Availability in Lbs/DM/Acre/rotation.

Soil Map Unit Symbol	1	excellent	2	good	3	fair	4	poor
Number of Acres	1	0.0	2	40.0	3	115.1	4	26.0
Forage Yield (tons/year)	1	3.5	2	3.0	3	2.5	4	2.0
Forage Supply	1	1400.00	2	1200.00	3	1000.00	4	700
Lbs/DM/Acre/Rotation								

**Step 4. Determine Paddock Size by major soil type.**

Paddock size is based on meeting the forage demand of the livestock for the designated residency period.

Soil Map Unit Symbols	Forage Demand	Forage Supply	Acres Required/day (demand + supply)	Residency Period	Paddock Size (ac.) (Acres/day X Residency)
excellent	4800.00	1400.00	3.4	3.5	12.0
good	4800.00	1200.00	4.0	3.5	14.0
fair	4800.00	1000.00	4.8	3.5	16.8
poor	4800.00	700.00	6.9	3.5	24.0

**Step 5. Determine the Number of Paddocks**

Days of rest required per paddock during the summer	Divided by	Residency Period	Equals	Plus 1	Equals	Number of Paddocks
30		3.5	8.571428571	1		9.571428571

**Step 6. Total Number of Acres Needed**

This calculation uses the average paddock size of the most prevalent soil type from Step 4.

Paddock Size	Multiplied by	Number of Paddocks	Equals	Acres Needed
17.0		9.571428571		162.7142857

**\*\*NOTE\*\*** During spring and early summer, only about 40 to 60% of the planned acres will be required for grazing. The remaining 40 to 60% should be mechanically harvested or planned to be grazed by another group of livestock following their own prescribed grazing management plan.

This landowner has	80	% of total acres that can be harvested
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**Step 7. Evaluate the Balance Between Forage Supply and Forage Demand**

Number of Acres Available	Divided by	Number of Acres Needed	Equals
181.1		162.7142857	1.112993854

**\*\*NOTE\*\*** This number MUST equal 1 or greater to ensure an adequate balance between the forage supply and the forage demand. If it does not the box is red and you must identify the appropriate management actions required to balance the forage supply with the forage demand (i.e. increase supplementation, increase the number of acres, or reduce animal numbers.)



Landowner/Operator **Ron Cieri/Jim Ingram (Davis/Horn)**  
 County **Delaware**  
 Date **April 4, 2018**

**B. WORKSHEET FOR USE WITH THE ROTATIONAL STOCKING METHOD**

**Step 1a. Estimate The Forage Demand**

The forage demand is the amount of forage dry matter (DM) required to feed a group of livestock for one day. It is calculated based on the rule of thumb that grazing animals require an amount of forage DM equal to about 2.5 to 3.5% of their body weight per day. For lactating animals use 3.5%, and growing stock use 3.0% of body weight. For all other classes of livestock, except equine and pigs, use 2.5% of body weight. For equine, use 5.0% to allow adequate exercise area - this is not the actual intake. For pigs, use 2.0% to allow for rooting behavior - this is not the actual intake. Do not adjust daily forage demand in step 1b. below for horses or pigs.

Average Weight/Animal	Lactation Status	Lbs/DM/Head/Day	# Animals	Forage Demand
700	0.03	21	80	1680
0		0	0	0
0		0	0	0
<i>Unadjusted Daily Forage Demand=</i>				<b>1680</b>

**Step 1b. Adjust Daily Forage Demand**

Adjust Daily Forage Demand as a result of supplemental feed use by deducting the pounds of supplemental feeds on a dry matter basis from the daily forage demand: If supplemental forages are provided, they are substituted on a pound for pound basis. If supplemental grain is fed, the substitution rate is one pound of grain equals .5 pounds of forage. Use the table to the right "Typical Dry Matter Contents" to select a value or enter the farmer's estimated value. This step is primarily for dairy cattle, although beef cattle, sheep, and goats may be supplemented as well. Do not use for horses or pigs.

Forage type	% DM	Lbs. Forage As Fed	Lbs. Dry Matter Fed
			0.00
			0.00
			0.00
			0.00
<b>Total lbs forage DM supplemented</b>		0.0	<b>0.00</b>

*This is the Forage Supplement*

Grain type	% DM	Lbs. Grain As Fed	Lbs. Dry Matter Fed
High Moisture Grain			0.00
Grain - Meal or Pellets			0.00
<b>Total lbs. grain supplemented</b>		0.0	<b>0.00</b>

*This is the Grain Supplement*

Forage demand to be adjusted	1680	Total number of animals supplemented	0
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*<-- Note: These cells MUST be completed even if no supplement is fed.*

<b>Total Dry Matter Supplemented</b>	Forage + Grain Supplements =		0.00
Unadjusted Daily Forage Demand	<b>minus (-)</b>	Total Dry Matter Supplemented	<b>equals (=)</b>
1680		0.00	<b>1680.00</b>

*This is the Adjusted Daily Forage Demand*

Other groups unadjusted daily forage demand	0.00	1680.00	Total daily forage demand for all groups
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Organic Pasture Intake % Total Intake	100.0	<b>**NOTE**</b> Organic producers must have a minimum of 30% pasture intake as a percent of total intake.
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**Step 2. Select Residency Period**

3.5 Days

**\*\*NOTE\*\*** One half to 1-day residency periods are recommended for lactating dairy cows. Residency periods of 2 to 7 days may be used for all other livestock. To maximize harvest efficiency, use shorter residency periods. If the cell turns RED you must shorten the residency period.

**Step 3. Estimate the Forage Supply**

This is the amount of forage dry matter that is estimated to be available for grazing after a 15-day growth period in the spring and a 30-day growth period in the summer and fall.

Forage Availability Estimates

Hay Yield - Tons/DM/Acre/Year:	5.5	5	4.5	4	3.5	3	2.5
Forage Availability - Lbs/DM/Acre/Rotation	2200	2000	1800	1600	1400	1200	1000

**\*\*NOTE\*\*** These values are for planning purposes only. They reflect average yields for pastures rated EXCELLENT on the resource inventory and data page when growing conditions are not limiting, soil fertility is maintained to soil test recommendations, and pH is not less than 5.8. For pastures rated GOOD, reduce yield by 0.5 T/A; for pastures rated POOR, reduce yield by 1.0 T/A. Use the above table to convert hay yields in Tons/DM/Acre/Year to Forage Availability in Lbs/DM/Acre/rotation.

Soil Map Unit Symbol	1	excellent	2	good	3	fair	4	poor
Number of Acres	1	61.0	2	48.0	3	75.2	4	50.0
Forage Yield (tons/year)	1	3.5	2	3.0	3	2.5	4	2.0
Forage Supply	1	1400.00	2	1200.00	3	1000.00	4	700
Lbs/DM/Acre/Rotation								

**Step 4. Determine Paddock Size by major soil type.**

Paddock size is based on meeting the forage demand of the livestock for the designated residency period.

Soil Map Unit Symbols	Forage Demand	Forage Supply	Acres Required/day (demand ÷ supply)	Residency Period	Paddock Size (ac.) (Acres/day X Residency)
excellent	1680.00	1400.00	1.2	3.5	4.2
good	1680.00	1200.00	1.4	3.5	4.9
fair	1680.00	1000.00	1.7	3.5	5.9
poor	1680.00	700.00	2.4	3.5	8.4

**Step 5. Determine the Number of Paddocks**

Days of rest required per paddock during the summer	Divided by	Residency Period	Equals	Plus 1	Equals	Number of Paddocks
30		3.5	8.571428571	1		9.571428571

**Step 6. Total Number of Acres Needed**

This calculation uses the average paddock size of the most prevalent soil type from Step 4.

Paddock Size	Multiplied by	Number of Paddocks	Equals	Acres Needed
7.0		9.571428571		67

**\*\*NOTE\*\*** During spring and early summer, only about 40 to 60% of the planned acres will be required for grazing. The remaining 40 to 60% should be mechanically harvested or planned to be grazed by another group of livestock following their own prescribed grazing management plan.

This landowner has 85 % of total acres that can be harvested

**Step 7. Evaluate the Balance Between Forage Supply and Forage Demand**

Number of Acres Available	Divided by	Number of Acres Needed	Equals
234.2		67	3.495522388

**\*\*NOTE\*\*** This number MUST equal 1 or greater to ensure an adequate balance between the forage supply and the forage demand. If it does not the box is red and you must identify the appropriate management actions required to balance the forage supply with the forage demand (i.e. increase supplementation, increase the number of acres, or reduce animal numbers.)



Landowner/Operator **Ron Cieri/Jim Ingram (Davis/Horn)**  
 County **Delaware**  
 Date **April 4, 2018**

**B. WORKSHEET FOR USE WITH THE ROTATIONAL STOCKING METHOD**

**Step 1a. Estimate The Forage Demand**

The forage demand is the amount of forage dry matter (DM) required to feed a group of livestock for one day. It is calculated based on the rule of thumb that grazing animals require an amount of forage DM equal to about 2.5 to 3.5% of their body weight per day. For lactating animals use 3.5%, and growing stock use 3.0% of body weight. For all other classes of livestock, except equine and pigs, use 2.5% of body weight. For equine, use 5.0% to allow adequate exercise area - this is not the actual intake. For pigs, use 2.0% to allow for rooting behavior - this is not the actual intake. Do not adjust daily forage demand in step 1b. below for horses or pigs.

Average Weight/Animal	Lactation Status	Lbs/DM/Head/Day	# Animals	Forage Demand
700	0.03	21	280	5880
0		0	0	0
<i>Unadjusted Daily Forage Demand=</i>				<b>5880</b>

**Step 1b. Adjust Daily Forage Demand**

Adjust Daily Forage Demand as a result of supplemental feed use by deducting the pounds of supplemental feeds on a dry matter basis from the daily forage demand: If supplemental forages are provided, they are substituted on a pound for pound basis. If supplemental grain is fed, the substitution rate is one pound of grain equals .5 pounds of forage. Use the table to the right "Typical Dry Matter Contents" to select a value or enter the farmer's estimated value. This step is primarily for dairy cattle, although beef cattle, sheep, and goats may be supplemented as well. Do not use for horses or pigs.

Forage type	% DM	Lbs. Forage As Fed	Lbs. Dry Matter Fed
			0.00
			0.00
			0.00
			0.00
<i>Total lbs forage DM supplemented</i>		0.0	<b>0.00</b>

*This is the Forage Supplement*

Grain type	% DM	Lbs. Grain As Fed	Lbs. Dry Matter Fed
High Moisture Grain			0.00
Grain - Meal or Pellets			0.00
<i>Total lbs. grain supplemented</i>		0.0	<b>0.00</b>

*This is the Grain Supplement*

Forage demand to be adjusted	5880	Total number of animals supplemented	0
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*<-- Note: These cells MUST be completed even if no supplement is fed.*

<i>Total Dry Matter Supplemented</i>	Forage + Grain Supplements =	0.00
Unadjusted Daily Forage Demand	<i>minus (-)</i>	Total Dry Matter Supplemented
5880		<i>equals (=)</i>
		<b>5880.00</b>

*This is the Adjusted Daily Forage Demand*

Other groups unadjusted daily forage demand	0.00	5880.00	Total daily forage demand for all groups
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Organic Pasture Intake % Total Intake	100.0	<b>**NOTE**</b> Organic producers must have a minimum of 30% pasture intake as a percent of total intake.
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**Step 2. Select Residency Period**

3.5 Days

**\*\*NOTE\*\*** One half to 1-day residency periods are recommended for lactating dairy cows. Residency periods of 2 to 7 days may be used for all other livestock. To maximize harvest efficiency, use shorter residency periods. If the cell turns RED you must shorten the residency period.

**Step 3. Estimate the Forage Supply**

This is the amount of forage dry matter that is estimated to be available for grazing after a 15-day growth period in the spring and a 30-day growth period in the summer and fall.

Forage Availability Estimates

Hay Yield - Tons/DM/Acre/Year:	5.5	5	4.5	4	3.5	3	2.5
Forage Availability - Lbs/DM/Acre/Rotation	2200	2000	1800	1600	1400	1200	1000

**\*\*NOTE\*\*** These values are for planning purposes only. They reflect average yields for pastures rated EXCELLENT on the resource inventory and data page when growing conditions are not limiting, soil fertility is maintained to soil test recommendations, and pH is not less than 5.8. For pastures rated GOOD, reduce yield by 0.5 T/A; for pastures rated POOR, reduce yield by 1.0 T/A. Use the above table to convert hay yields in Tons/DM/Acre/Year to Forage Availability in Lbs/DM/Acre/rotation.

Soil Map Unit Symbol	1	excellent	2	good	3	fair	4	poor
Number of Acres	1	61.0	2	48.0	3	75.2	4	50.0
Forage Yield (tons/year)	1	3.5	2	3.0	3	2.5	4	2.0
Forage Supply	1	1400.00	2	1200.00	3	1000.00	4	700
Lbs/DM/Acre/Rotation								

**Step 4. Determine Paddock Size by major soil type.**

Paddock size is based on meeting the forage demand of the livestock for the designated residency period.

Soil Map Unit Symbols	Forage Demand	Forage Supply	Acres Required/day (demand ÷ supply)	Residency Period	Paddock Size (ac.) (Acres/day X Residency)
excellent	5880.00	1400.00	4.2	3.5	14.7
good	5880.00	1200.00	4.9	3.5	17.2
fair	5880.00	1000.00	5.9	3.5	20.6
poor	5880.00	700.00	8.4	3.5	29.4

**Step 5. Determine the Number of Paddocks**

Days of rest required per paddock during the summer	Divided by	Residency Period	Equals	Plus 1	Equals	Number of Paddocks
30		3.5	8.571428571	1		9.571428571

**Step 6. Total Number of Acres Needed**

This calculation uses the average paddock size of the most prevalent soil type from Step 4.

Paddock Size	Multiplied by	Number of Paddocks	Equals	Acres Needed
20.0		9.571428571		191.4285714

**\*\*NOTE\*\*** During spring and early summer, only about 40 to 60% of the planned acres will be required for grazing. The remaining 40 to 60% should be mechanically harvested or planned to be grazed by another group of livestock following their own prescribed grazing management plan.

This landowner has 85 % of total acres that can be harvested

**Step 7. Evaluate the Balance Between Forage Supply and Forage Demand**

Number of Acres Available	Divided by	Number of Acres Needed	Equals
234.2		191.4285714	1.223432836

**\*\*NOTE\*\*** This number MUST equal 1 or greater to ensure an adequate balance between the forage supply and the forage demand. If it does not the box is red and you must identify the appropriate management actions required to balance the forage supply with the forage demand (i.e. increase supplementation, increase the number of acres, or reduce animal numbers.)





UNITED STATES DEPARTMENT OF AGRICULTURE

Landowner/Operator	Ron Cieri/Jim Ingram - Elk Creek
County	Delaware
Date	April 4, 2018

**B. WORKSHEET FOR USE WITH THE ROTATIONAL STOCKING METHOD**

**Step 1a. Estimate The Forage Demand**

The forage demand is the amount of forage dry matter (DM) required to feed a group of livestock for one day. It is calculated based on the rule of thumb that grazing animals require an amount of forage DM equal to about 2.5 to 3.5% of their body weight per day. For lactating animals use 3.5%, and growing stock use 3.0% of body weight. For all other classes of livestock, except equine and pigs, use 2.5% of body weight. For equine, use 5.0% to allow adequate exercise area - this is not the actual intake. For pigs, use 2.0% to allow for rooting behavior - this is not the actual intake. Do not adjust daily forage demand in step 1b. below for horses or pigs.

Average Weight/Animal	Lactation Status	Lbs/DM/Head/Day	# Animals	Forage Demand
500	0.03	15	80	1200
0		0	0	0
0		0	0	0
0		0	0	0
<i>Unadjusted Daily Forage Demand=</i>				<b>1200</b>

**Step 1b. Adjust Daily Forage Demand**

Adjust Daily Forage Demand as a result of supplemental feed use by deducting the pounds of supplemental feeds on a dry matter basis from the daily forage demand: If supplemental forages are provided, they are substituted on a pound for pound basis. If supplemental grain is fed, the substitution rate is one pound of grain equals .5 pounds of forage. Use the table to the right "Typical Dry Matter Contents" to select a value or enter the farmer's estimated value. This step is primarily for dairy cattle, although beef cattle, sheep, and goats may be supplemented as well. Do not use for horses or pigs.

Forage type	% DM	Lbs. Forage As Fed	Lbs. Dry Matter Fed
			0.00
			0.00
			0.00
			0.00
<b>Total lbs forage DM supplemented</b>		0.0	<b>0.00</b>

*This is the Forage Supplement*

Grain type	% DM	Lbs. Grain As Fed	Lbs. Dry Matter Fed
High Moisture Grain			0.00
Grain - Meal or Pellets			0.00
<b>Total lbs. grain supplemented</b>		0.0	<b>0.00</b>

*This is the Grain Supplement*

Forage demand to be adjusted	1200	Total number of animals supplemented	1200
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**<-- Note: These cells MUST be completed even if no supplement is fed.**

<b>Total Dry Matter Supplemented</b>	Forage + Grain Supplements =		0.00
Unadjusted Daily Forage Demand	<b>minus (-)</b>	Total Dry Matter Supplemented	<b>equals (=)</b>
1200		0.00	<b>1200.00</b>

*This is the Adjusted Daily Forage Demand*

Other groups unadjusted daily forage demand	0.00	1200.00	Total daily forage demand for all groups
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Pasture Intake % Total Intake	100.0
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**\*\*NOTE\*\*** All producers must have a minimum of 30% pasture intake as a percent of total intake.



**Step 2. Select Residency Period**

3.5	Days
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**\*\*NOTE\*\*** One half to 1-day residency periods are recommended for lactating dairy cows. Residency periods of 2 to 7 days may be used for all other livestock. To maximize harvest efficiency, use shorter residency periods. If the cell turns RED you must shorten the residency period.

**Step 3. Estimate the Forage Supply**

This is the amount of forage dry matter that is estimated to be available for grazing after a 15-day growth period in the spring and a 30-day growth period in the summer and fall.

Forage Availability Estimates

Hay Yield - Tons/DM/Acre/Year:	5.5	5	4.5	4	3.5	3	2.5
Forage Availability - Lbs/DM/Acre/Rotation	2200	2000	1800	1600	1400	1200	1000

**\*\*NOTE\*\*** These values are for planning purposes only. They reflect average yields for pastures rated EXCELLENT on the resource inventory and data page when growing conditions are not limiting, soil fertility is maintained to soil test recommendations, and pH is not less than 5.8. For pastures rated GOOD, reduce yield by 0.5 T/A; for pastures rated POOR, reduce yield by 1.0 T/A. Use the above table to convert hay yields in Tons/DM/Acre/Year to Forage Availability in Lbs/DM/Acre/rotation.

Soil Map Unit Symbol	1	excellent	2	good	3	fair	4	poor
Number of Acres	1	0.0	2	12.7	3	37.5	4	17.5
Forage Yield (tons/year)	1	3.5	2	3.0	3	2.5	4	2.0
Forage Supply	1	1400.00	2	1200.00	3	1000.00	4	700
Lbs/DM/Acre/Rotation								

**Step 4. Determine Paddock Size by major soil type.**

Paddock size is based on meeting the forage demand of the livestock for the designated residency period.

Soil Map Unit Symbols	Forage Demand	Forage Supply	Acres Required/day (demand + supply)	Residency Period	Paddock Size (ac.) (Acres/day X Residency)
excellent	1200.00	1400.00	0.9	3.5	3.0
good	1200.00	1200.00	1.0	3.5	3.5
fair	1200.00	1000.00	1.2	3.5	4.2
poor	1200.00	700.00	1.7	3.5	6.0

**Step 5. Determine the Number of Paddocks**

Days of rest required per paddock during the summer	Divided by	Residency Period	Equals	Plus 1	Equals	Number of Paddocks
30		3.5	8.571428571	1		9.571428571

**Step 6. Total Number of Acres Needed**

This calculation uses the average paddock size of the most prevalent soil type from Step 4.

Paddock Size	Multiplied by	Number of Paddocks	Equals	Acres Needed
5.0		9.571428571		47.85714286

**\*\*NOTE\*\*** During spring and early summer, only about 40 to 60% of the planned acres will be required for grazing. The remaining 40 to 60% should be mechanically harvested or planned to be grazed by another group of livestock following their own prescribed grazing management plan.

This landowner has 70 % of total acres that can be harvested

**Step 7. Evaluate the Balance Between Forage Supply and Forage Demand**

Number of Acres Available	Divided by	Number of Acres Needed	Equals
67.7		47.85714286	1.414626866

**\*\*NOTE\*\*** This number MUST equal 1 or greater to ensure an adequate balance between the forage supply and the forage demand. If it does not the box is red and you must identify the appropriate management actions required to balance the forage supply with the forage demand (i.e. increase supplementation, increase the number of acres, or reduce animal numbers.)



Landowner/Operator	Ron Cieri/Jim Ingram - Elk Creek
County	Delaware
Date	April 4, 2018

**B. WORKSHEET FOR USE WITH THE ROTATIONAL STOCKING METHOD**
**Step 1a. Estimate The Forage Demand**

The forage demand is the amount of forage dry matter (DM) required to feed a group of livestock for one day. It is calculated based on the rule of thumb that grazing animals require an amount of forage DM equal to about 2.5 to 3.5% of their body weight per day. For lactating animals use 3.5%, and growing stock use 3.0% of body weight. For all other classes of livestock, except equine and pigs, use 2.5% of body weight. For equine, use 5.0% to allow adequate exercise area - this is not the actual intake. For pigs, use 2.0% to allow for rooting behavior - this is not the actual intake. Do not adjust daily forage demand in step 1b. below for horses or pigs.

Average Weight/Animal	Lactation Status	Lbs/DM/Head/Day	# Animals	Forage Demand
1200	0.025	30	10	300
600	0.035	21	20	420
0		0	0	0
<i>Unadjusted Daily Forage Demand=</i>				<b>720</b>

**Step 1b. Adjust Daily Forage Demand**

Adjust Daily Forage Demand as a result of supplemental feed use by deducting the pounds of supplemental feeds on a dry matter basis from the daily forage demand: If supplemental forages are provided, they are substituted on a pound for pound basis. If supplemental grain is fed, the substitution rate is one pound of grain equals .5 pounds of forage. Use the table to the right "Typical Dry Matter Contents" to select a value or enter the farmer's estimated value. This step is primarily for dairy cattle, although beef cattle, sheep, and goats may be supplemented as well. Do not use for horses or pigs.

Forage type	% DM	Lbs. Forage As Fed	Lbs. Dry Matter Fed
			0.00
			0.00
			0.00
			0.00
<i>Total lbs forage DM supplemented</i>		0.0	<b>0.00</b>

*This is the Forage Supplement*

Grain type	% DM	Lbs. Grain As Fed	Lbs. Dry Matter Fed
High Moisture Grain			0.00
Grain - Meal or Pellets			0.00
<i>Total lbs. grain supplemented</i>		0.0	<b>0.00</b>

*This is the Grain Supplement*

Forage demand to be adjusted	720	Total number of animals supplemented	780
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*← Note: These cells MUST be completed even if no supplement is fed.*

<i>Total Dry Matter Supplemented</i>	Forage + Grain Supplements =	0.00
Unadjusted Daily Forage Demand	<i>minus (-)</i> Total Dry Matter Supplemented	<i>equals (=)</i>
720	0.00	<b>720.00</b>

*This is the Adjusted Daily Forage Demand*

Other groups unadjusted daily forage demand	0.00	720.00	Total daily forage demand for all groups
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Organic Pasture Intake % Total Intake	100.0	<b>**NOTE**</b> Organic producers must have a minimum of 30% pasture intake as a percent of total intake.
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**Step 2. Select Residency Period**

3.5	Days
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**\*\*NOTE\*\*** One half to 1-day residency periods are recommended for lactating dairy cows. Residency periods of 2 to 7 days may be used for all other livestock. To maximize harvest efficiency, use shorter residency periods. If the cell turns RED you must shorten the residency period.

**Step 3. Estimate the Forage Supply**

This is the amount of forage dry matter that is estimated to be available for grazing after a 15-day growth period in the spring and a 30-day growth period in the summer and fall.

Forage Availability Estimates

<i>Hay Yield - Tons/DM/Acre/Year:</i>	5.5	5	4.5	4	3.5	3	2.5
<i>Forage Availability - Lbs/DM/Acre/Rotation</i>	2200	2000	1800	1600	1400	1200	1000

**\*\*NOTE\*\*** These values are for planning purposes only. They reflect average yields for pastures rated EXCELLENT on the resource inventory and data page when growing conditions are not limiting, soil fertility is maintained to soil test recommendations, and pH is not less than 5.8. For pastures rated GOOD, reduce yield by 0.5 T/A; for pastures rated POOR, reduce yield by 1.0 T/A. Use the above table to convert hay yields in Tons/DM/Acre/Year to Forage Availability in Lbs/DM/Acre/rotation.

Soil Map Unit Symbol	1	excellent	2	good	3	fair	4	poor
Number of Acres	1	0.0	2	11.5	3	5.1	4	7.0
Forage Yield (tons/year)	1	3.5	2	3.0	3	2.5	4	2.0
Forage Supply	1	1400.00	2	1200.00	3	1000.00	4	700
Lbs/DM/Acre/Rotation								

**Step 4. Determine Paddock Size by major soil type.**

Paddock size is based on meeting the forage demand of the livestock for the designated residency period.

Soil Map Unit Symbols	Forage Demand	Forage Supply	Acres Required/day (demand ÷ supply)	Residency Period	Paddock Size (ac.) (Acres/day X Residency)
excellent	720.00	1400.00	0.5	3.5	1.8
good	720.00	1200.00	0.6	3.5	2.1
fair	720.00	1000.00	0.7	3.5	2.5
poor	720.00	700.00	1.0	3.5	3.6

**Step 5. Determine the Number of Paddocks**

Days of rest required per paddock during the summer	Divided by	Residency Period	Equals	Plus 1	Equals	Number of Paddocks
30		3.5	8.571428571	1		9.571428571

**Step 6. Total Number of Acres Needed**

This calculation uses the average paddock size of the most prevalent soil type from Step 4.

Paddock Size	Multiplied by	Number of Paddocks	Equals	Acres Needed
2.5		9.571428571		23.92857143

**\*\*NOTE\*\*** During spring and early summer, only about 40 to 60% of the planned acres will be required for grazing. The remaining 40 to 60% should be mechanically harvested or planned to be grazed by another group of livestock following their own prescribed grazing management plan.

This landowner has 70 % of total acres that can be harvested

**Step 7. Evaluate the Balance Between Forage Supply and Forage Demand**

Number of Acres Available	Divided by	Number of Acres Needed	Equals
23.6		23.92857143	0.986268657

**\*\*NOTE\*\*** This number MUST equal 1 or greater to ensure an adequate balance between the forage supply and the forage demand. If it does not the box is red and you must identify the appropriate management actions required to balance the forage supply with the forage demand (i.e. increase supplementation, increase the number of acres, or reduce animal numbers.)





UNITED STATES DEPARTMENT OF AGRICULTURE

Landowner/Operator	Ron Cieri/Jim Ingram - Elk Creek
County	Delaware
Date	April 4, 2018

**B. WORKSHEET FOR USE WITH THE ROTATIONAL STOCKING METHOD**

**Step 1a. Estimate The Forage Demand**

The forage demand is the amount of forage dry matter (DM) required to feed a group of livestock for one day. It is calculated based on the rule of thumb that grazing animals require an amount of forage DM equal to about 2.5 to 3.5% of their body weight per day. For lactating animals use 3.5%, and growing stock use 3.0% of body weight. For all other classes of livestock, except equine and pigs, use 2.5% of body weight. For equine, use 5.0% to allow adequate exercise area - this is not the actual intake. For pigs, use 2.0% to allow for rooting behavior - this is not the actual intake. Do not adjust daily forage demand in step 1b. below for horses or pigs.

Average Weight/Animal	Lactation Status	Lbs/DM/Head/Day	# Animals	Forage Demand
0		0	0	0
500	0.03	15	160	2400
<i>Unadjusted Daily Forage Demand=</i>				<b>2400</b>

**Step 1b. Adjust Daily Forage Demand**

Adjust Daily Forage Demand as a result of supplemental feed use by deducting the pounds of supplemental feeds on a dry matter basis from the daily forage demand: If supplemental forages are provided, they are substituted on a pound for pound basis. If supplemental grain is fed, the substitution rate is one pound of grain equals .5 pounds of forage. Use the table to the right "Typical Dry Matter Contents" to select a value or enter the farmer's estimated value. This step is primarily for dairy cattle, although beef cattle, sheep, and goats may be supplemented as well. Do not use for horses or pigs.

Forage type	% DM	Lbs. Forage As Fed	Lbs. Dry Matter Fed
			0.00
			0.00
			0.00
			0.00
<i>Total lbs forage DM supplemented</i>		0.0	<b>0.00</b>

*This is the Forage Supplement*

Grain type	% DM	Lbs. Grain As Fed	Lbs. Dry Matter Fed
High Moisture Grain			0.00
Grain - Meal or Pellets			0.00
<i>Total lbs. grain supplemented</i>		0.0	<b>0.00</b>

*This is the Grain Supplement*

Forage demand to be adjusted	2400	Total number of animals supplemented	0
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<-- Note: These cells MUST be completed even if no supplement is fed.

<i>Total Dry Matter Supplemented</i>	Forage + Grain Supplements =	0.00
Unadjusted Daily Forage Demand	<b>minus (-)</b> Total Dry Matter Supplemented	<b>equals (=)</b>
2400	0.00	<b>2400.00</b>

*This is the Adjusted Daily Forage Demand*

Other groups unadjusted daily forage demand	0.00	2400.00	Total daily forage demand for all groups
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Organic Pasture Intake % Total Intake	100.0	<b>**NOTE**</b> Organic producers must have a minimum of 30% pasture intake as a percent of total intake.
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**Step 2. Select Residency Period**

3.5	Days
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**\*\*NOTE\*\*** One half to 1-day residency periods are recommended for lactating dairy cows. Residency periods of 2 to 7 days may be used for all other livestock. To maximize harvest efficiency, use shorter residency periods. If the cell turns RED you must shorten the residency period.

**Step 3. Estimate the Forage Supply**

This is the amount of forage dry matter that is estimated to be available for grazing after a 15-day growth period in the spring and a 30-day growth period in the summer and fall.

Forage Availability Estimates

Hay Yield - Tons/DM/Acre/Year:	5.5	5	4.5	4	3.5	3	2.5
Forage Availability - Lbs/DM/Acre/Rotation	2200	2000	1800	1600	1400	1200	1000

**\*\*NOTE\*\*** These values are for planning purposes only. They reflect average yields for pastures rated EXCELLENT on the resource inventory and data page when growing conditions are not limiting, soil fertility is maintained to soil test recommendations, and pH is not less than 5.8. For pastures rated GOOD, reduce yield by 0.5 T/A; for pastures rated POOR, reduce yield by 1.0 T/A. Use the above table to convert hay yields in Tons/DM/Acre/Year to Forage Availability in Lbs/DM/Acre/rotation.

Soil Map Unit Symbol	1	excellent	2	good	3	fair	4	poor
Number of Acres	1	0.0	2	0.0	3	70.0	4	20.3
Forage Yield (tons/year)	1	3.5	2	3.0	3	2.5	4	2.0
Forage Supply	1	1400.00	2	1200.00	3	1000.00	4	700
Lbs/DM/Acre/Rotation								

**Step 4. Determine Paddock Size by major soil type.**

Paddock size is based on meeting the forage demand of the livestock for the designated residency period.

Soil Map Unit Symbols	Forage Demand	Forage Supply	Acres Required/day (demand + supply)	Residency Period	Paddock Size (ac.) (Acres/day X Residency)
excellent	2400.00	1400.00	1.7	3.5	6.0
good	2400.00	1200.00	2.0	3.5	7.0
fair	2400.00	1000.00	2.4	3.5	8.4
poor	2400.00	700.00	3.4	3.5	12.0

**Step 5. Determine the Number of Paddocks**

Days of rest required per paddock during the summer	Divided by	Residency Period	Equals	Plus 1	Equals	Number of Paddocks
30		3.5	8.571428571	1		9.571428571

**Step 6. Total Number of Acres Needed**

This calculation uses the average paddock size of the most prevalent soil type from Step 4.

Paddock Size	Multiplied by	Number of Paddocks	Equals	Acres Needed
8.5		9.571428571		81.35714286

**\*\*NOTE\*\*** During spring and early summer, only about 40 to 60% of the planned acres will be required for grazing. The remaining 40 to 60% should be mechanically harvested or planned to be grazed by another group of livestock following their own prescribed grazing management plan.

This landowner has 70 % of total acres that can be harvested

**Step 7. Evaluate the Balance Between Forage Supply and Forage Demand**

Number of Acres Available	Divided by	Number of Acres Needed	Equals
90.3		81.35714286	1.109920983

**\*\*NOTE\*\*** This number MUST equal 1 or greater to ensure an adequate balance between the forage supply and the forage demand. If it does not the box is red and you must identify the appropriate management actions required to balance the forage supply with the forage demand (i.e. increase supplementation, increase the number of acres, or reduce animal numbers.)



# SQUAN I, LLC

## Grazing Plan Narrative

Landowner: Ron Cieri      Farm Manager: Jim Ingram  
Planner: Dan Vredenburg

The following is an outline for the proposed rotational grazing systems for the farm's cow/calf herd, a group of weaned calves, a small group of cull & miscellaneous animals, and a group of feeders. The approximately 100 cow/calf pairs are grazed on roughly 180 acres on the "Davis Road" management area. Approximately 80 "pre-finish" feeders are grazed at the "Home Farm" management area. Once the pre-finish animals reach the target weight, they are moved to the neighboring farm (Stonewall Pastures) to complete the finishing process. The ~80 weaned calves are grazed on the "Elk Creek" management area and there is also a smaller group of livestock (bulls, culls, etc.) that will be housed/grazed on a portion of the Elk Creek management area that is isolated from the weanlings. Use the plan for reference and make alterations as needed based on fluctuating animal numbers, field conditions & production, and management priorities. In addition to the planning information for current livestock numbers, some guidance is given for potential maximum animal numbers the different management areas could support, as well as, alternate grazing strategies. The plans are meant to be a guide to get started. Alterations and changes will be needed within the grazing year and from year to year. Flexibility and the ability to change based on current conditions and goals are critical to successful grazing systems. "Fine tuning" the grazing systems will certainly be required.

### General Grazing Management:

Rotational grazing systems are generally broken down into two management units. Unit I being primary pasture and comprising 40-60% of the system. The remainder (Unit II) would be mechanically harvested initially then incorporated, as needed, during/through the summer.

In general, the "ideal" residency period for beef animals to stay in one paddock is 3-4 days. This can vary depending on animal class, management goals, and/or pasture/paddock sizes and production. The residency period used for this plan is 3.5 days. As the animals are rotated through the system, pay close attention to forage heights. In general, you will want to be turning animals into a paddock at 6-10" and taking them out at 2-4". Those guidelines will help you make determinations on whether planned paddock sizes/residencies are adequate or if they should be altered. As with residency periods, these general rules can be altered based on the livestock and management goals. Please note, forage production estimates are purposely underestimated to some degree to ensure there will be adequate pasture for the livestock. Adjust paddock sizes and/or residencies according to actual observed pasture production.

Managing/controlling the grazing is critical for the systems' success. Overgrazing severely reduces pasture productivity and lengthens regrowth times (it can more than double the time for grasses to get back to 6-10"). Undergrazing can waste forage potentially reducing future pasture quality and grazing efficiency. However, both can be used as management tools. (For instance, overgrazing can be used to set the stage for pasture improvements and undergrazing to improve soil health by returning organic matter and nutrients back into the soil (see Additional Grazing Management Recommendations).

The livestock could start in any Unit I paddock (or any paddock) early in the season based on pasture conditions (grass height), prior fall and winter management, and planned goals. For example, paddocks that are used for stockpiling, winter bale grazing, or spring sacrifice areas won't likely be available first thing in the spring. Animals should be turned out to pasture early (generally driest paddocks), before grass is at optimum height (3-4" instead of 8") and rotated quickly as the pasture grows ( $\frac{1}{4}$  to  $\frac{1}{2}$  of normal residency, increasing through 1-2 rotations before using the planned residency). This helps control the spring flush of grass and staggers/stages regrowth in the paddocks. Move the animals through the paddocks in the most convenient manner to fit your management plans/goals/priorities. As the season progresses, graze paddocks that are at the optimum height and not just the next paddock in line. If the spring flush gets ahead of you, move to the paddock that is optimum and mechanically harvest or clip paddocks past optimum heights (or stockpile – see below).



## Davis Road

### Paddock Sizes:

With the current animal numbers (100 cow/calf pairs) and management, planned residencies range from 1-6 days depending on paddock size, pasture conditions, and time of the year. The plan worksheets indicate that paddock sizes would be as follows for 3.5 day residencies: 12 acres on the best producing ground; 14 acres on good pasture; 17 acres on marginal pasture; and 24 acres on poor pasture. Some paddocks are larger or smaller than planned sizes and/or are heavily wooded, therefore will require some adjustment to the residency periods, as indicated below. Monitor grass heights & actual production to know where/when adjustments should be made. See the corresponding Grazing Management Considerations for additional details and management strategies. The following are approximate paddock sizes/dimensions and residencies for the planned system (*alternatives in italics*).

#### Unit I:

<i>paddock #</i>	<i>size</i>	<i>est. production</i>	<i>residency</i>	<i>approximate dimensions/divisions:</i>
1	26.1 ac.	fair	5-6 day	existing field
<i>1a</i>	<i>11.5 ac.</i>		<i>2.5-3 day</i>	<i>split from crossing to corner (approximate off map)</i>
<i>1b</i>	<i>14.6 ac.</i>		<i>2.5-3 day</i>	
2	19.3 ac.	fair	3.5-4 day	existing field
3	8.6 ac.	fair-poor	1.5 day	existing field
4	10.5 ac.	fair	2 day	existing field
<i>3/4</i>	<i>19.1 ac.</i>		<i>3.5 day</i>	<i>combine pasture</i>
5	17.0 ac.	fair-poor	1.5 day	existing field
<i>4/5</i>	<i>27.5 ac.</i>		<i>3.5 day</i>	<i>combine pastures</i>
6	12.6 ac.	fair-poor	2 day	existing fields
<i>5/6</i>	<i>29.6 ac.</i>		<i>3.5 day</i>	<i>combine pastures</i>
<i>6a</i>	<i>3.8 ac.</i>			<i>existing field</i>
<i>6b</i>	<i>8.8 ac.</i>			<i>existing field</i>
7	11.6 ac.	fair	2-2.5 day	existing field
8	28.9 ac.	poor	2 day	cleared field
9	6.6 ac.	fair	1-1.5 day	existing field
10	28.3 ac.	poor-fair	5 day	estimate division off map
11	26.9 ac.	poor	4 day	remaining paddock from above division
<i>10/11</i>	<i>55.2 ac.</i>		<i>9 days</i>	<i>split into 3 paddocks; 3 days/paddock</i>
12	20.1 ac.	poor	1 day	excluded paddock – dry times only
13	17.0 ac.	poor	1 day	excluded paddock – dry times only
<b>Total</b>	<b>233.7 ac.</b>		<b>~32 days</b>	

### Davis Road Management Considerations:

The planning worksheets indicate that the existing pasture acreage should be sufficient for the ~100 cow/calf pairs for much of the grazing season and with the estimated production numbers used, there would not be much room to expand the cow/calf herd without additional or improved acreage. The planning chart indicates that pasture may run short later in the summer, requiring some supplementation. Additionally, there are no acres listed under Unit II (primary harvest). Much of the Davis Road pasture has not been harvested or is able to be harvested. Use clipping and/or stockpiling to manage excess production.





## Elk Creek - weanlings

### Paddock Sizes:

With the planned animal numbers of ~80 weaned calves (400-600#) in this management area, planned residencies range from 1-4.5 days depending on paddock size, pasture conditions, and time of the year. The plan worksheets indicate that paddock sizes would be as follows for 3.5 day residencies: 3 acres on the best producing ground; 3.5 acres on good pasture; 4.2 acres on marginal pasture; and 6 acres on poor pasture. Some paddocks are larger or smaller than planned sizes and/or are heavily wooded, therefore will require some adjustment to the residency periods, as indicated below. Younger, growing classes of livestock may benefit from quicker rotations (i.e. more consistent, higher quality forage more often). For instance, residencies could be cut in half on many paddocks (split a 4 day paddock in half for a 2 day residency). See the corresponding Grazing Management Considerations for more details and management strategies. The following are approximate paddock sizes/dimensions and residencies for the planned system.

<b>Unit I:</b>				
<i>paddock #</i>	<i>size</i>	<i>est. production</i>	<i>residency</i>	<i>approximate dimensions/divisions:</i>
2	1.8 ac.	fair-poor	1-1.5 day	existing field
3	4.0 ac.	fair	3-3.5 day	existing field
5	4.6 ac.	poor	2.5 day	use "field" and property boundaries
6	3.3 ac.	poor	1-1.5 day	wooded area
7	5.2 ac.	fair	4-4.5 day	estimate off map/existing paddock
8	5.1 ac.	fair	4-4.5 day	8/9 division diagonally splits existing middle paddock
9	5.3 ac.	fair	4-4.5 day	remaining paddock
10	5.9 ac.	fair	4.5-5 day	existing paddock(s)
11	9.1 ac.	poor	5-5.5 day	remainder of pasture after paddock below is fenced
12	5.1 ac.	fair-poor	3.5 day	existing meadow
<b>Total</b>	<b>49.4 ac.</b>		<b>~34 days</b>	
<b>Unit II:</b>				
1a	4.3 ac.	fair-good	3.5 day	~570' on Elk Creek Rd. (at tree); ~560' on Turnpike Rd.
1b	4.3 ac.	fair-good	3.5 day	from exclusion fence corner, to tree, to trees on Turnpike Rd.
1c	4.1 ac.	fair-good	3.5 day	remaining paddock
4	5.4 ac.	fair	5-5.5 day	existing field
<b>Total</b>	<b>18.1 ac.</b>		<b>~16 days</b>	

### Elk Creek Management Considerations:

The planning worksheets indicate that the allocated pasture acreage is more than sufficient for the ~80 weaned calves. Based on estimated production, this grazing management area (when properly managed) could provide enough forage for up to 130 similarly sized animals (especially if production is higher than estimated or is improved over time). However, it should be noted that this class of animals is one that should not be stressed, as it can lead to production issues as they get older. Therefore, make sure the pasture they are given is of adequate quality and quantity. If it is not, provide supplemental forage too ensure animals can achieve peak performance. Additionally,

A possible grazing scenario might proceed as follows: As early as possible start animals in paddocks 1a-c and move through the paddocks (skipping paddock 4) on a quick rotation (1 day





## Elk Creek – bulls/culls/odd lots

### Paddock Sizes:

This ~29 acre area will be home to the farm’s bulls, cull cows, and “odd lot” animals. The bulls will likely stay confined to the planned feed building and have access to all or portions of paddocks 1a-c. The culls and odd lots could be rotationally grazed through the remainder of the acreage (not that cull cows and the younger class of animals will have totally different nutritional requirements). With the planned animal numbers of ~10 culls (1200#) and ~20 miscellaneous animals (~500-700#) in this management area, planned residencies range from 2-4 days depending on paddock size and pasture conditions. The plan worksheets indicate that paddock sizes would be as follows for 3.5 day residencies: 2.1 acres on good pasture; 2.5 acres on marginal pasture; and 3.6 acres on poor pasture. Some paddocks are larger or smaller than planned, therefore will require some adjustment to the residency periods, as indicated below. See the corresponding Management Considerations for more details and management strategies. Additionally, the animals in this management area might be just as easily continuously grazed and supplementally fed in the planned feed building. The following are approximate paddock sizes/dimensions and residencies for the planned system.

#### **Unit I:**

<i>paddock #</i>	<i>size</i>	<i>est. production</i>	<i>residency</i>	<i>approximate dimensions/divisions:</i>
1a	1.1 ac.	poor	n/a	existing paddock
1b	1.4 ac.	poor	n/a	existing paddock
1c	3.4 ac.	poor	n/a	1c/d division from stream xing, to proposed building,...
1d	3.0 ac.	poor	3 day	...to ~275' from exclusion fence corner
2a	2.5 ac.	fair	3.5 day	from southern fence: ~315' along Elk Creek Rd.....
2b	2.5 ac.	fair	3.5 day	.... & 300' along swamp
3	4.0 ac.	poor	2-3 day	existing pasture (streams excluded)
<b>Unit II:</b>				
4a	2.3 ac.	good	3.5 day	estimate a-d divisions on SW fence off map
4b	2.2 ac.	good	3.5 day	a/b division ~490' on NE fence line
4c	2.2 ac.	good	3.5 day	b/c division ~290' on NE fence line
4d	2.2 ac.	good	3.5 day	c/d division ~240' on NE fence line (to corner)
5	2.4 ac.	good	4 day	existing meadow
<b>Total</b>	<b>29.2 ac.</b>		<b>~30 days</b>	

### Management Considerations:

The planning worksheets indicate that the allocated pasture acreage is somewhat deficient for the ~30 animals (as mention previously, possibly feed cull animals and only graze the younger stock). If rotational grazing is used, move through the system in manner that fits management goals. Hay could possibly be cut in all or portions of paddocks 4 & 5 within the rotation or used primarily as hay and potentially aftergrazed in the fall if animals are mostly fed in the proposed feeding area(s). note: fence lines in paddock 1 will likely change when planned feed building is constructed.

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# Home Farm

## Paddock Sizes:

With the planned animal numbers of ~80 “pre-finish” animals (600-800#) in this management area, planned residencies range from 1-4 days depending on paddock size, pasture conditions, and time of the year. The plan worksheets indicate that paddock sizes ranges would be as follows for 3.5 day residencies: 4.2 acres on the best producing ground; 5 acres on good pasture; 6 acres on marginal pasture; and 8.4 acres on poor pasture. Some paddocks are larger or smaller than planned sizes and/or are heavily wooded, therefore will require some adjustment to the residency periods. See the corresponding Grazing Management information for more details and management options. As mentioned in the weaned calf plan, this group of livestock may also benefit from a quicker/shorter rotation (2 days vs. 3-4). Four day paddocks could be split in half and grazed 2 days if/when desired. The following are approximate paddock sizes/dimensions and residencies for the planned system (*alternatives in italics*).

### Unit I:

<i>paddock #</i>	<i>size</i>	<i>est. production</i>	<i>residency</i>	<i>approximate dimensions/divisions:</i>
1	10.9 ac.	poor	4 day	existing pasture
2	21.7 ac.	poor	3.5-4 day	~6.5 ac. open ground; division from east corner of upper field....
3	18.7 ac.	poor	3.5-4 day	...to west corner of lower field (estimate off map; ~7 ac. open ground)
4a	7.5 ac.	fair-poor	3.5-4 day	existing paddock
4b	7.2 ac.	fair-poor	3.5 day	b/c division from slat crossing to paddock 5c/d division (see below)
4c	7.4 ac.	fair-poor	3.5 day	4b/c (5c/d) division ~525' from fence along Davis Rd.
5a	7.1 ac.	fair	4-4.5 day	~270' along east fence (@ 4a/b division); ~460' along west fence
5b	7.0 ac.	fair	4 day	~370' along east fence; ~470' along west fence
5c	7.2 ac.	fair-poor	4 day	~445' along east fence; ~420' along west fence (@ 4b/c division)
5d	7.0 ac.	fair-poor	4 day	remainder of field
6a	6.1 ac.	fair	3.5 day	division from corner of woods on SW & SE corners
6b	6.6 ac.	fair	3.5-4 day	~340' along west fence line(@ 6b/c division)
6c	6.6 ac.	fair	3.5-4 day	~405' along west fence; 5a/b & b/c on east fence
6d	6.7 ac.	fair	3.5-4 day	~460' along west fence
6e	5.1 ac.	fair-good	3.5 day	remainder of pasture (to air strip)
7a	10.1 ac.	poor	3.5 day	estimate off map; to watering site
7b	9.0 ac.	poor	3.5 day	estimate off map; to watering site
7c	8.8 ac.	poor	3.5 day	estimate off map; to watering site
8a	12.3 ac.	poor	3 day	estimate off map (~6.5 ac. cleared ground)
8b	16.2 ac.	poor	3 day	estimate off map (~6 ac. cleared ground)
<b>Total</b>	<b>186.9 ac.</b>		<b>~73 days</b>	

### Unit II:

9	16.6 ac.	good-ex.	11 days	3 paddocks
10	7.8 ac.	good	5.5 day	existing meadow; <i>or (2) 2.5-3 day paddocks</i>
11	22.8 ac.	excellent	18 days	5 paddocks
12	6.1 ac.	good	4 day	existing field
13	9.4 ac.	excellent	8 days	2 paddocks
14	17.5 ac.	excellent	14 days	4 paddocks
<b>Total</b>	<b>81.9 ac.</b>		<b>~60 days</b>	

## Home Farm Management Considerations:

The planning worksheets indicate that there is excessive pasture in this management area for the planned number of animals (~80 pre-finished cattle). These animals will only require ~70 acres, therefore none of the Unit II acres (and likely some of the Unit I) should be required. Based on estimated production, there is a potential to graze over 280 pre-finish animals (~700#) using the existing pasture and meadow acreage (likely 200+ animals on just the pastures alone).

Due to the excessive acreage, there are numerous options for managing this system. One possible scenario is as follows: As with the other management areas, start grazing early on a quick rotation. Paddocks 4 a/b will likely be abused from the outwintering animals, therefore wait to incorporate those paddocks until later in the season when grass heights are sufficient. Start in paddock 3, 2, & 1 with a 1-2 day residency. Move next to paddock 8 for 2 days, then 1 day each in paddocks 7a-c, then to paddock 6a-d for a day each (save 6e for hay), and end the first rotation in paddock 5d-a for 2 days each. In this example paddocks 1-3 will be stockpiled for the summer (see below) and paddocks 6a-d will be harvested as hay (graze the portion of b & c that has trees as 1 paddock, hay the rest). From paddock 5a, spend 2 days each in paddocks 8b, 8a, 7a, 7b, & 7c (in that order). Next, 3 days in paddock 6b/c, 4 days each in paddocks 5a-d. Rotate into paddocks 4c then b for 3.5 days each and 4a for 4 days (paddock 4 will likely have excess forage which make them candidates for a take half/leave half scenario – see below). From paddock 4a, graze 4 days each in the stockpiled forage of paddocks 3, 2, & 1. Paddock 8 could be skipped and stockpiled for later in the summer/fall. Graze paddocks 7a-c for 3.5-4 days each then 4 days in paddocks 6b/c, 5a-d, and 4c-a. Now graze the stockpiled forage in paddocks 8a&b (3.5-4 days each) and then continue on a 3 day rotation in paddocks 7a-c and paddocks 6a-e. Graze back through paddocks 5 d-a on a 3.5-4 day residency. Next either move animals through paddocks 4a/b or graze them for a day on the way to paddocks 3-1 to graze off the stockpile there. Many of the stockpiled paddocks will have a lot of forage in them. Strip grazing might be the best way to utilize the excess forage and minimize waste. As mentioned previously, mob grazing could also be used (see Management Recommendations below). From paddock 1 graze paddocks 8, 7, 6, & 5 based on available forage (possibly open each into one paddock and graze for 4-6 days each). At this point, the animals could be brought back for winter feeding or they could be run through paddocks 10-14 to after graze the meadows. Move through those paddocks based on available forage and take care not to over graze (overgrazing will affect the following year's production). Refer to the corresponding mock grazing chart to see how this scenario might work. This is just one of numerous possible scenarios for this management area. This example has the grazing season going into December. Manage the grazing system to best meet your goals and use flexibility to adjust to the numerous variables that can occur throughout the year.

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## Additional Grazing Management Recommendations:

Stockpiling Forage: If/when excess forage becomes available in the grazing system (mechanical harvest isn't necessary, pasture production increases significantly, and/or more land becomes available), grass can be allowed to grow to taller heights than normally recommended to then be grazed late in the season or even in the summer slump. To do this, designate areas or paddocks that you do not think you will need for the normal rotation and keep the animals off those areas. Allow the grass to grow (45-60+ days) and incorporate into the rotation when needed (possibly after the killing frost in the fall or when normal pasture production slows down). Normally the grass is rather tall (12"-24") so the best way to utilize this forage is to strip off the stockpiled forage in a way to provide the cows with ½ -1 day of forage (the smaller the area and the more you strip off the paddocks the better the cows will utilize the forage and the waste due to trampling and fouling is greatly reduced). Think of moving the wire often, say 2+ times per day, the same as filling up their feed bunk with higher quality standing hay. Consult with the planner to determine how big strips should be. Additionally, do not hesitate to graze the animals in the stockpiled feed when snow is on the ground. Cows can and will dig through several inches (even a foot or more) to get to the grass. However, remember, although cows can utilize snow for water intake, your water supply will be a limiting factor and steps will need to be taken to ensure the livestock have access to enough water.

Mob Grazing/Take Half-Leave Half: This concept is similar to stockpiling except it is employed during the grazing season. Grazing pastures that would generally be considered over-mature (12"++) at ultra high stocking densities for short durations leaving behind a significant amount of standing/trampled forage can improve pasture/soil quality by increasing organic matter and concentrating manure deposition. Mob grazing is best for livestock with lower nutritional requirements (cows, bulls, culls). The take half/leave half strategy can help with overall pasture longevity and production, therefore it can also be used at regular pasture heights (graze from 10" to 5"). If utilized be sure to account for potential lower amounts of forage per paddock (make paddocks larger).

*The sample grazing chart does indicate there may be some opportunities for stockpiling and/or mob grazing methods, particularly on the Elk Creek and Home Farm management Areas. For instance, paddocks 4, 11, & 12 in the Elk Creek system (weanlings) may have 50-60 days of rest, therefore forage will be higher than generally recommended (but there will be a lot of it). Same holds for the Home Farm system where any number of paddocks could be stockpiled due to excess acreage (the mock grazing chart shows many paddocks having 40-50 days of rest). Contact the planner or do further research for more information on this management style.*

Pasture Fertility/Production: Improved pasture management alone will help improve pasture production. However, additional amendments (lime, nutrients - N,P,K from fertilizer, manure, etc.) may be desired to increase production. A timely nitrogen application can quickly increase pasture production. Apply amendments according to current soil test results and agronomic recommendations. Consult with your farm or nutrient management planner and/or crop consultants for more information regarding fertilization options. As the soils improve, pasture improvements (frost seeding, no-till seeding, etc.) may be options to improve grass quality and production. Weed control is also a tool for improving pasture production. Alternate pasture management such as the above mentioned mob grazing or winter/bale grazing can also be methods/tools for improving pasture quality. Intense supplemental feeding on poor pastures can quickly bring about a positive change in pasture production and quality (possibly target Davis and Home paddocks 8). As pasture production improves, paddock sizes and/or residency periods should be adjusted.



Education: Management is the key aspect to making a rotational grazing system work properly, efficiently, and profitably. One of the best ways to learn about the different aspects related to proper rotational grazing management is to see it first hand and learn from those doing it successfully. Pasture walks are an excellent opportunity to do that. You are able to see what worked and didn't work for others utilizing rotational grazing, such as fencing, watering, pasture improvements, different management techniques, etc. You will also be able to network with other producers that have similar enterprises and/or management styles. In addition to pasture walks/farm tours, workshops and conferences are excellent opportunities to increase your knowledge on grazing management. Periodicals such as *Stockman Grass Farmer* and *Graze*, along with the endless amount of information on the Internet are excellent sources of information as well.

Grazing Chart: A series of grazing charts have been provided with this plan. They are excellent management tool to help plan, track, and analyze your grazing season, as well as, make changes/improvements and prepare for future seasons. Use the chart to plan out when & where cattle should be grazing and then document what actually happened during the season (grass heights, residency periods, weather conditions, etc.). Consult with the planner regarding any questions related to the grazing chart and to get additional charts in the future.

Refer to the generic NY Prescribed Grazing Plan included with this plan for more information on grazing management. Consult with planner regarding questions, issues, and/or major changes to the plan (significant increase/decrease in animal numbers, added or removed acreage, etc.).

Quality Management Assistance (QMA): Feel free to contact your planner or other WAP personnel with any questions related to grazing management in general or additional assistance with managing your specific grazing systems and components.

## Infrastructure:

### Fence:

Electric high tensile fence exists on or is planned for a majority of the acres allocated for the grazing systems. Use electric polywire for temporary paddock divisions and to make temporary laneways to move animals if/when needed. Where fence is needed, electric high tensile fence is recommended. To ensure adequate animal control, frequently inspect fences and make sure there is at least 3000 volts on the fence systems.

### Watering System:

Water should be provided within paddocks in close proximity to the grazing animals (ideally within 500-600'). The newly installed water systems were designed to achieve this as much as possible. Additions to these and other existing water systems may be required in some circumstances. Providing water in close proximity, as well as, moving the watering location within the paddock as much as possible makes the grazing system much more efficient and can significantly increase the manure distribution on the pastures, thereby increasing pasture productivity.

Many of the pastures/paddocks have established watering systems in place. Water for a majority of the pastures in the Davis Road system will be provided via a newly installed gravity water system from a pond (paddocks 1,2,4-7) and well (paddock 3). There are no developed sources water sources for paddocks 8 & 9 – they may have to be allowed access to the water in paddock 7 or alternative approaches could be used (water wagon, etc.). Water could also be potentially extended from paddock 3 or 7. Surface water will be used for paddocks 11 & 12.



Water for the Elk Creek management area (weanlings) will be provided in several ways. Paddock 1 will be supplied by the Davis Road water system (pipeline through a road culvert). Extending that system could provide water to paddock 2 and likely paddocks 3-5. Water for paddocks 7-12 will be provided by an existing well and gravity system. This system may also be expanded to provide water to paddock 6 and possibly paddock 5. The smaller grazing area on Elk Creek (culls, etc.) will have water provided by a newly refurbished well. Water for the Home Farm management unit will be supplied by a new pump system. All paddocks except paddock 9 will have direct access to water from this system. That system could be expanded to get water to paddock 9. Approximate locations of the existing and planned watering locations are shown on the plan view maps.

Supplying water to the animals during late season grazing when there is a greater chance of freezing temperatures may require additional management. Be sure to drain any above ground pipelines, troughs, and float valve and winterize pumps systems to prevent damage from freezing conditions when winter sets in.

The water system components are detailed on the plan map. Consult with planner for more details on the watering system (layout, installation, materials, & options).

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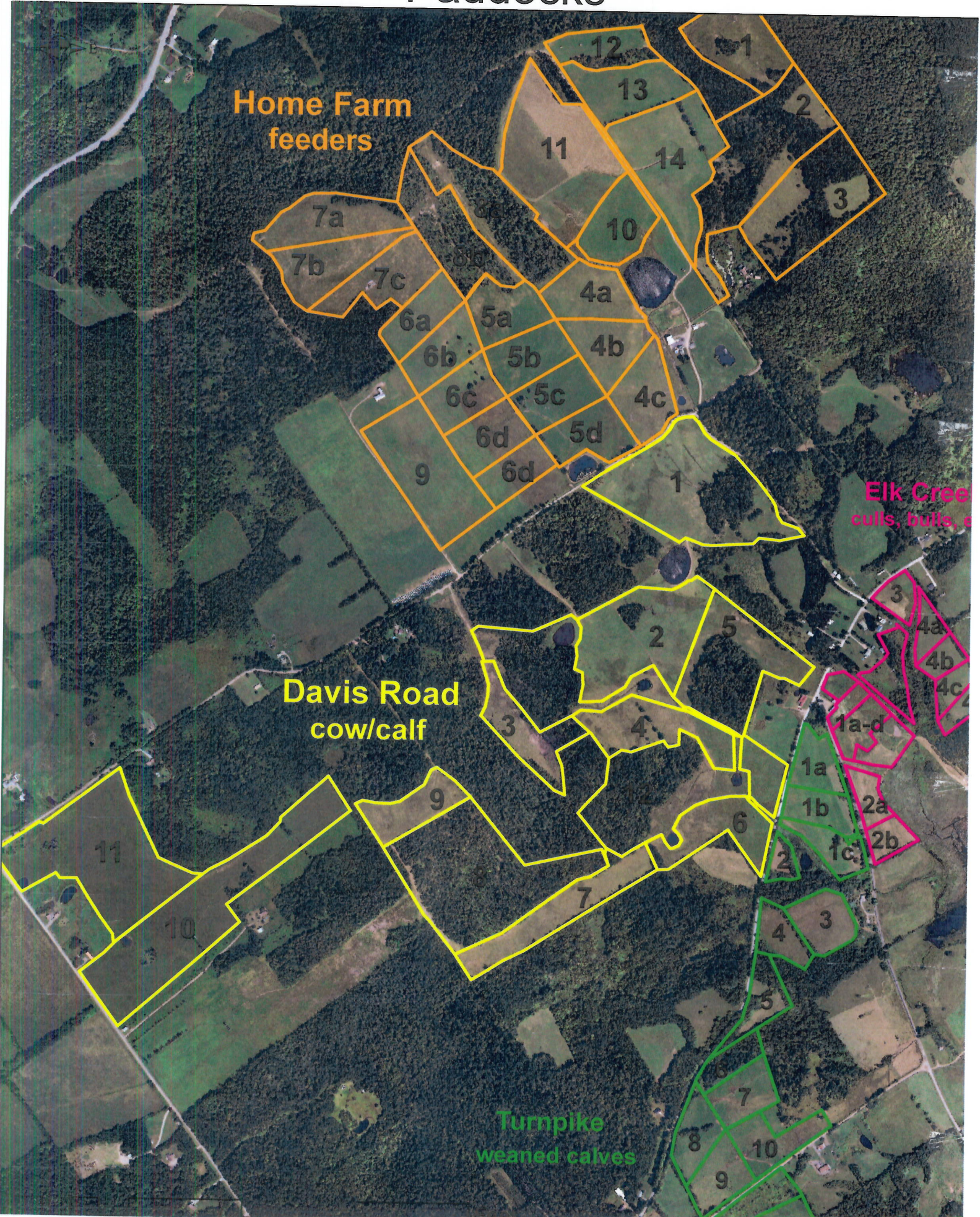
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# Paddocks



**Home Farm  
feeders**

**Davis Road  
cow/calf**

**Turnpike  
weaned calves**

**Elk Creek  
culls, bulls, etc.**







## NEW YORK PRESCRIBED GRAZING PLAN

DEFINITION, INDICATIONS FOR USE, IMPLEMENTATION AND OPERATION, GRAZING SCHEDULE AND MAINTENANCE FOR **ROTATIONALLY STOCKED PASTURES** CONSISTING OF COOL SEASON FORAGES

### DEFINITION

The rotational stocking method is a method of livestock deployment that utilizes five or more grazing units or paddocks that are alternately grazed and rested during the time period in which grazing is allowed. The size and number of paddocks or grazing units utilized is dependent on the level of managerial control desired, the productivity of the pasture and the number of livestock.

Individual paddocks are generally grazed one at a time, with the order based on the readiness of paddock to be grazed rather than following a numerical sequence or a specified number of days between subsequent grazing periods. Livestock occupy each paddock long enough to harvest the existing vegetation, but should not stay so long as to regraze plants a second time during a single occupancy period. After each paddock has been grazed to the desired stubble height (which depends on the plant species present and management objectives) the livestock are moved to a fresh paddock. Grazed paddocks are allowed to regrow to a desired height before again being grazed.

The rotational stocking method provides a greater opportunity for managing the quality, quantity and harvest efficiency of pastures than does the continuous stocking method. However, development costs for fence construction, provision of water and increased management are generally higher with this method. That aside, because rotational stocking methods tend to provide enhanced levels of control over both the animals and the plants, less forage is wasted which, in turn, means that livestock production (meat, milk and fiber) on a per acre of pasture basis is maximized.

Another advantage of the rotational stocking method is that through maintaining better control of the frequency, intensity, timing and duration of the grazing events, deeper rooted, more drought tolerant and higher yielding forage species may be utilized. While these plants do not hold up well under continuous grazing pressure, under rotational stocking management, they can remain productive and persist for many years.

### INDICATIONS FOR USE

Use of the rotational stocking method may be indicated when a resource inventory identifies a farm operation as a lactating dairy herd, a farm operation that is grazing with a less intensive style of management and is running short on feed or length of grazing season or any type of livestock operation looking to maximize production on a per acre of pasture

Rotational stocking methods are not recommended for livestock operations when a resource inventory identifies that the forage supply is in excess of the forage demand and the farm operator indicates there is no demonstrated need to harvest the forage that is in surplus to their grazing needs.

### IMPLEMENTATION AND OPERATION

The planning procedure outlined on the Prescribed Grazing Management Planning Worksheet For Use With The Rotational Stocking Method (NRCS, PGM-3A) estimates the amount of acres of pasture that will be required for the herd or flock during late summer and fall with a 30 day rest interval between grazings. In years of normal or near normal temperature and precipitation, this means that during the first 60 days of the season, the number of acres indicated would be nearly twice that which would be needed for grazing.

To ensure that this forage is not wasted and to maintain pastures at their highest quality, the following implementation procedure is recommended.

Allocate the pasture into two separate management units based on their first intended use. Designate the land on which grazing will begin in the spring and whose primary means of harvest will be through grazing as Management Unit I. Generally, this will be the land with the driest soil conditions and where the forage will be ready to graze the soonest or land that is too steep, rocky or otherwise not harvestable through mechanical means.

Designate the land on which the first use or harvest will be through mechanical means as Management Unit II. This land is part of the pasture acreage calculated on the PGM-3A but is not needed for pasture during the first 60 days of the grazing season. Generally, this land will be flatter, further from the barn or holding facility and offer no obstacles to mechanical harvest.

As a general consideration, Management Unit I should contain about 40% of the planned acreage with Management Unit II the remaining 60%.



Grazing should begin on Management Unit I when forage heights reach approximately 3 inches. (SEE GRAZING SCHEDULE BELOW). Continue moving livestock to new paddocks until one of the previously grazed paddocks has regrown to a height of approximately 6 inches and is ready to be grazed again. At this point, stop adding paddocks that have not been grazed once already. It is time to start the second rotation. Keep in mind; the paddock that was grazed first, the first time around, may not be the paddock that will be ready to be grazed first in the second rotation. Whichever paddock that recovers to a height of 6 inches the quickest is the next paddock to graze. The remaining ungrazed paddocks or land in the system should now be designated as part of Management Unit II.

All of the land in Management Unit II should be harvested mechanically by the end of the second rotation or the start of the third. This should generally occur around the second or third week of May depending on the year and location.

Although taking an early cut of hay may result in a lower harvested yield, the quality of the forage is much higher. In addition, taking an early harvest allows for regrowth to occur while moisture and temperature conditions are generally more favorable than they are later in the year.

Waiting longer to harvest, in order to obtain a higher yield, sacrifices the quality of feed and may also limit the regrowth potential.

Depending on the growing conditions, plant species and management level applied, by the end of the fourth rotation, most of the land planned for use in the system will be utilized for grazing. However, in some instances, this will not be the case. In situations where there is still more forage available than can be consumed through grazing, an additional harvest of some of the land in Management Unit II may be desirable.

### **Fencing**

To ensure that both the structural integrity of the grazing system as well as management flexibility are maintained, a combination of both permanent and temporary fencing materials are recommended.

The kind and amount of fence utilized should be of sufficient high quality and durability to facilitate control of the intended livestock. See NRCS Fence Standard 382 for guidance.

### **Laneways**

Laneways should be constructed to facilitate livestock movement to and from pasture, between paddocks or to the water supply. Width should be no wider than necessary to expedite livestock movement or if they are to be used for both livestock and machinery passage, they should be wide enough to accommodate the largest piece of machinery anticipated. Ensure that the travel surface remains firm. Where problems with wet conditions and mud exist, geotextile filter fabric, gravel and limestone dust or other similar materials may be required. In other situations the use of culvert pipes or bridges may be necessary.

### **Water**

Water should be made available to livestock while in the pasture in an ample quantity and ample quality to meet their nutritional requirements and be provided in such a manner as to not cause environmental concern or degradation. As a general consideration, water for lactating dairy cattle should be provided within 200 to 300 feet of where the cows are grazing. All other livestock should have water provided within 800 to 1,000 feet. Water lines should be placed in protected areas along or beneath fences, and where they cross gate openings or other unprotected areas additional

### **Supplemental and Contingency Feeding Plan**

To ensure that deficiencies in feed quality, quantity or availability are not limiting livestock performance, it is recommended that a qualified nutritionist be consulted to evaluate your feeding program. Consult your local Cornell Cooperative Extension or Natural Resources Conservation Service office for assistance.

In case adverse growing conditions limit pasture yields and quality, it is recommended that an alternative feeding strategy be developed. This might include such things as planning to add additional grazing land to the system, buying additional feeds, or reducing livestock numbers.

### **Pasture Seeding**

Pastures should not be seeded or renovated until there is a prescribed grazing management plan in place to facilitate the control of livestock and soil fertility has been amended to soil test recommendations.

The next step is the addition of an adapted legume. Once a legume has been introduced into the pasture, generally there is a greater difference in yield, quality and animal performance due to management than there is due to changing the grass species.

If the addition of a grass is desired, ensure that it is adapted to the soil drainage class and fertility status.



## **GRAZING SCHEDULE**

### **Timing and Frequency of Grazing**

#### *Spring*

Grazing should begin in the spring on the first paddock that reaches approximately 3 inches in height and is dry enough to support livestock without undue punching of the soil.

Paddocks should be grazed again when the forage reaches 4 to 6 inches for low growing species of grasses and legumes and 6 to 8 inches in height for tall growing species. This will generally occur between 8 and 15 days from the date livestock exit the paddock.

#### *Summer and Fall*

Grazing should occur in the summer or fall on paddocks or fields that were previously grazed, clipped or mechanically harvested when the height of the forage reaches 4 to 6 inches for low growing species of grasses and legumes and 6 to 8 inches for tall growing species. This will generally occur between 15 and 40 days from the date the forage was last harvested.

### **Intensity of Grazing**

#### *Spring*

The first grazing in the spring should leave low growing species of grasses and legumes with a 1 to 2 inch residual stubble height and tall growing species with a 2 to 2½ inch residual stubble height.

#### *Summer and Fall*

Residual stubble heights need to be adjusted upwards when grazing during the summer and fall, depending on temperature and moisture conditions. Generally, residual stubble heights under normal early summer conditions should be similar to those outlined for spring grazing. However, as temperatures increase and moisture levels decrease, short growing species of grasses and legumes should not be grazed lower than 2 to 3 inches and tall growing species should not be grazed to residual stubble heights of less than 3 to 4 inches.

### **Duration of Grazing**

The duration (length of time) livestock have access to an individual paddock is controlled by selecting an appropriate residency period to meet the identified management objectives.

The selection of an appropriate residency period is based on livestock occupying a paddock long enough to consume the existing forage but, generally, not so long that there is time for the forage to regrow and be grazed a second time during a single occupancy period. The exception to this rule occurs when severe grazing is prescribed to eliminate undesirable plant species or to regain vegetative control of pastures that have grown past their prime in quality.

#### *Spring*

Because plant growth is exceptionally fast in the spring, residency periods should be kept as short as possible. For lactating livestock such as dairy cows, dairy goats and dairy sheep, one half of one day to 1 day is recommended. For all other livestock 2 to 4 days should be considered maximum.

#### *Summer*

Plant growth slows to about one half of what it is in the spring. As a result, residency periods can be extended to as long as 7 days for livestock other than the lactating livestock previously identified. In order to meet the higher nutritional demands of lactating dairy livestock, it is recommended that residency periods remain one half to 1 day.

As a general consideration, for all kinds and classes of livestock, the shorter the residency period, the greater the forage utilization. The longer the residency period, the greater the reduction in forage utilization due to trampling, matting and fouling with urine and fecal material.

## **MAINTENANCE**

### **Clipping Pastures**

Pastures should be clipped to control weeds and to return the forage base to a vegetative condition. It is recommended that all pastures be clipped or mechanically harvested by the start of the third rotation. Generally around the last week of May or the first week of June under normal growing conditions.

### **Fertility and Nutrient Management**

All pastures should be soil tested at least once in every 3 years and fertility levels be adjusted to the recommended levels according to the needs of the plants and whole farm nutrient management plan. See NRCS Nutrient Management Standard 590 for guidance.

### **Weed Control**

While some weeds can be grazed or eliminated through grazing and clipping, others will need to be sprayed with an approved herbicide.

For persistent weed problems, consult your local Cornell Cooperative Extension office for site and weed specific recommendations.

## **ADDITIONAL INFORMATION**