



## Michigan Technical Note

### USDA-Natural Resources Conservation Service

#### **Grazing #5**

**Subject: Planning for Organic Pastures**

**Date: September 2009**

### **Organic Pasture Definition**

The National Organic Standard defines pasture as land used for livestock grazing that is managed to provide feed value and maintain or improve soil, water, and vegetative resources (section 205.2). Land is not considered pasture if it is overgrazed, bare soil or a drylot. Ruminants, such as cattle, goats, and sheep must have access to pasture (section 205.239(a)(2)), and managers have the responsibility to maintain the ecological integrity of the pasture resource with proper grazing management. For more information, see the National Organic Standard at [www.arms.usda.gov/nop/indexNet.htm](http://www.arms.usda.gov/nop/indexNet.htm). Pasture is a crop whether it is harvested by animals through grazing or made into hay, silage, baleage, etc. All the standards for organic crop production apply to pasture. Grazing technical note #5 assists planners in developing conservation plan alternatives by identifying key aspects for consideration in organic grazing systems.

### **Considerations in Grazing Planning**

The following topics are key items particular to an organic pasture system. Incorporation of management strategies to address these resource concerns into the Prescribed Grazing Plan is expected. For more guidance on developing a grazing plan refer to Grazing Technical Note #3 Designing a Prescribed Grazing System.

### **Pasture Plant Condition**

#### **Productivity, Plant Health and Vigor**

Organic management aims to build healthy soils and provide natural nourishment to pasture plants. Conventional fertilization with commercial products may not meet the manager's objectives. A well managed organic pasture benefits from the functioning of an undisturbed soil ecosystem with regular inputs of organic matter. Plant residue from roots and surface are important inputs to the soil ecosystem. Grazing management creates cycles of growth and die back contributing to building soil organic matter and feeding soil organisms. Root exudates also feed soil organisms. Grazing livestock also contribute nutrients through the recycling of manure. Therefore, maintaining or improving plant health and vigor is essential in an organic system.

Nitrogen is usually the limiting nutrient in a grass pasture. Adding nitrogen through additions of manure from off-pasture storage is an option. However when manure is applied based on nitrogen rates, other nutrients are often over applied, especially phosphorus. The most economical and environmentally safe source of nitrogen in organic systems is from legumes. If improving pasture health and vigor is the manager's objective, the pastures should be managed to promote legume growth.

Legumes may be introduced to the pasture stand, overseeding, no-till interseeding, or frost seeding, are methods to add legume seed. Pasture management, soil fertility and grazing, must change to favor legume growth. Legumes become the key species to monitor. Lime may be required to raise the soil pH to a level acceptable for the growth of legumes. The target pH value for legumes is 6.5. Soil testing is an essential management tool.

Optimize the recycling of manure nitrogen. When animals congregate in areas around feeders, water tanks and mineral boxes, manure nutrients become concentrated there. To better distribute manure nutrients around the pasture, move water tanks, feeders and shade structures as frequently as possible.

Soil test analysis will determine the need for other plant nutrients. While recycling is occurring, the return of nutrients taken from the pasture is not 100%. Often pastures were established on soils already deficient in nutrients, or have lost nutrients over time through crop removal and leaching. It is not unusual for pastures to be deficient in phosphorus and potassium. Soil pH correction is the first step in nutrient management. Manure and composts can be used to supply these nutrients when application rates are based on phosphorus.

Organic materials, including manure, may contain prohibited substances. Other natural fertilizer materials, for example fish emulsion, may be prohibited due to the manufacturing process. The certifier makes the determination on any material or activity related to certifying an organic pasture. Managers should work closely with certifiers and inspectors when selecting nutrient amendments.

### **Pests-Weed Control**

The first step in weed control on organic pastures is maintaining a healthy forage base. The second step is correct identification of the target weed. With the weed correctly identified, the manager can decide if this is an undesirable plant and take action based on plant growth and development. Also consider where the weed seed came from and how to prevent further infestation.

Many weeds are palatable during early stages of growth. Grazing at this time will keep the weed vegetative rather than progressing toward seed development. Higher stocking density encourages more uniform grazing than lightly stocked pastures. Weeds will be grazed along with the desirable forage species. Broadleaf weed populations tend to decrease under intensively managed grazing systems. Overgrazing can shift the competitive advantage back to weedy species, so the grazing plan must clearly outline what management is needed to control the target weed.

Multispecies grazing may provide weed management as livestock species differ in preferred forages. Goats prefer to browse brushy weeds. Sheep prefer broadleaf forage to grass. When considering utilizing small ruminants to enhance weed management, the stocking density may need to be adjusted. Often, two to five small ruminants may be added without changing the regular livestock herd size. Adjustments to the number of small ruminants to large stock will be necessary if eradication of weedy species is the goal.

Type	Horses	Cattle	Sheep	Goats
----- % of diet -----				
Forage <sup>a</sup>	90	70	60	20
Weeds	4	20	30	20
Browse <sup>b</sup>	6	10	10	60

<sup>a</sup> Mixture of grass and legumes

<sup>b</sup> Woody material

Mowing, brush-hogging, hoeing and hand pulling weeds may be used alone or in combination with grazing management. Weed identification is important with mechanical weed control when selecting the time and method. Weed species that produce rhizomes or stolons may be spread through actions that attempt to cut out the weed. Deep rooted weeds are not easily hand pulled, and may require removal of a portion of the roots for successful elimination. Mechanical weed control can take several years before results are seen.

### **Improvement, Renovation or Re-establishment to Improve Forage Quantity and Quality**

The decision to reseed or renovate pastures is often one of the most difficult decisions for the manager to make. In general, improvement by changing the grazing management is the easiest and least costly option. However changing management may mean more labor. Renovating includes changes to management along with soil amendments to enhance fertility and/or introducing new species. Re-establishment is warranted when the plant species available are not desirable for the livestock type. Re-establishment requires advanced planning for grazing tight in the fall and eliminating the existing vegetation. Multiple tillage operations may be needed to remove the existing vegetation.

- If the pasture contains 75% or more desirable species, then manage, don't renovate.
- If the pasture contains 40 to 75 % desirable species, manage and possibly inter- or over-seed.
- If the pasture contains less than 40% desirable species, re-establish and manage.

### **Grazing –Plant Management**

A complete prescribed grazing plan on organic pastures will include the criteria listed in conservation practice 528 Prescribed Grazing. Details of the grazing management needed to resolve resource concerns will include stocking density, duration of grazing, and frequency of grazing. Monitoring forage height and grazed residue height is essential in organic pasture systems to promote forage health, provide a healthy grazing environment for the livestock, and control soil erosion.

### **Protect Surface Water Quality**

Riparian areas should be stabilized and protected under flash grazing. All waterways should be protected from livestock wastes by limiting access, flash grazing, and alternate water sources.

Organic pasture systems may require multiple levels of management. Ensuring that the pasture remains organic may require field borders or buffer strips to filter surface water contaminants including chemicals and nutrients. Neighboring field runoff should be diverted from crossing the organic pasture or utilize a filter strip or a grassed waterway which are excluded from grazing.

### **Animal Health Management- Control of parasites**

Dewormers are severely restricted or prohibited for use in organic systems. Grazing livestock are exposed to parasites on pasture and in bedding or manure areas. Parasites are the major health concern for grazing animals in organic pasture systems. Sheep and goats are more susceptible to internal parasites than other livestock.

Grazing management must be the primary method for sustainable control of internal parasites. If pastures are not overstocked, there may be little difficulty with internal parasites. When livestock are forced to graze close to the ground tends to increase the occurrence of ingesting the infective larval stage of the parasites. The amount of acres available for pasture may be increased compared to a non-organic management system. The increased acres are a result of taller grazing heights and/or longer rest periods.

Maintaining a grazing forage height of 4 inches or more will lower the probability of parasite infection considerably. Livestock will avoid manure piles and the forage surrounding them which helps to avoid eating the larvae. Overstocked pastures force livestock to eat closer to their manure.

Pasture grazing periods should be planned to provide optimal nutrition from forages as well as strategic parasite control. Rest periods should be planned carefully. Longer rest periods are needed to avoid parasite contamination. The rest period suggested in the literature ranges from 60 days to one year. More rest time is the best strategy for parasite control. The minimum rest period to consider should be 60 days. One option to achieve a long rest period is to combine a grazing period, rest period, and haying. Another option would be grazing beef cow/calves followed by stockers, or lactating dairy cows followed by dry cows or heifers, and then the small ruminant, to achieve the long rest periods needed for the "clean" pastures desired.

Multispecies grazing systems can work to reduce parasite infection when the livestock species do not have common parasites. For example, cattle and horses do not share the same parasites as sheep. Sheep and goats do have common parasites. Chickens and other pastured poultry/fowl help breakdown dung pats which helps to reduce the environment that favors parasites.

Safe and/or Clean pastures should be part of the grazing acres. Safe pastures are ones that have been used for hay, silage or small grains. Safe pastures carry some parasite load but if managed properly provide a good way of controlling infection. Clean pasture can be a new seeding grazed for the first time or a pasture grazed the previous year by only a different livestock species that does not have common parasites, for example cattle grazed the year before sheep. Utilize browse or woody plants that contain tannins when goats are included as a livestock species. Increased tannin levels are found in alfalfa, Birdsfoot trefoil and chicory.

Other parasite management strategies include delaying grazing of a pasture until parasite numbers have declined. Young winter or spring lambs should not graze infected pastures from March to May. Young stock during their first year of grazing are most susceptible to parasite

infection. Whenever possible, these animals should graze pasture that was not grazed by the same species in the previous year.

The risk of infection can be lowered by delaying access to pasture until the dew has lifted or grass has dried after a rain. Parasites stay closer to the plant base in dry conditions and are less likely to be ingested.

## **Organic Grazing Systems Plan**

New fence construction should be addressed in on organic management plan. Treated wood is prohibited from use anywhere the wood contacts organic soil, crops or livestock. Durable wood posts should be used in new construction.

Producers will work with their inspector and certifying organization to develop their strategy to become organic certified. One useful resource producers may choose to follow is the NCAT Organic Livestock Workbook. A complete conservation plan including a grazing plan that considers pasture condition and management will assist organic livestock producers.

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