



## Top Ten Factors to Consider Before Growing Grains Dr. Heather Darby, UVM Extension

**1. Timing** –It should come as no surprise that growing grain will require additional resources and time to be successful. Operating a dairy farm already involves good management of cows, soil, and forages. Before deciding to venture into a new business you must decide if you have the time and resources to invest into grain production. Often planting of grain crops such as corn and soybeans can interfere with timely harvest of the first cutting of forage. The first priority should be on harvesting and storing quality forages.

**2. Selecting the Proper Grain** – There is a wide variety of grains that can be grown in New England. Corn, soybeans, and small grains are some of the commonly grown grains in Vermont. To decide what grain to grow you will need to identify what nutrient requirements you are trying to meet from feeding grain. Basically, are you looking for energy or protein? In addition, you will want to select a grain that fits into your growing season and minimizes new equipment purchases.

**3. Equipment Needs for Growing Grain** – There will be some additional pieces of equipment that will be required to grow grains. Most likely these pieces of steel are not in your fleet, especially if you only grow perennial crops. A combine will be needed to harvest most grain. Depending on the grain to be grown you may also need to purchase weed control tools such as cultivators and tinweeders. This equipment is sometimes difficult to locate in Vermont. However, NY, PA, and Canada have a good supply of used equipment. It is always helpful to talk with other local grain producers to discuss equipment purchases and dealers.

**4. How many Acres to Grow** – Having a good handle on how many tons of grain your farm uses each year will help identify how many acres of grain you might try to grow on your farm. Realistically, it may difficult to meet all of your farm’s grain needs through on-farm production. It might be best to set a goal and try to meet that in the first year. In successive years as you gain more experience you can continue to expand the acreage and types of grains that you produce. For example if energy is your primary and most expensive grain purchase, you might consider growing a portion of your energy. Yields of organic grains vary from site to site. A range of grain yields for organic grain crops is shown in Table 1.

**5. Site Selection** – Once you know what grain you are growing and how many acres you can begin to scope out land that would be suitable for grain production. Most grain crops like well drained loamy soil. It may be in your best interests to select your top producing fields to build into a rotation that includes grain and forage crops. Remember that combines and cultivators dislike rocks. For example, soybean pods set close to the ground. If there are lots of rocks in the field harvesting could be a challenge and expensive.

Table 1. Spring cereal production information for New England

| Grain        | Planting Date      | Soil Type             | Seeding Rate per acre | Harvest Date           | Test Weight per bushel | Yield per acre | Storage moisture % |
|--------------|--------------------|-----------------------|-----------------------|------------------------|------------------------|----------------|--------------------|
| Barley       | Early to mid April | light or well-drained | 60-125 lbs            | Early August           | 48 lbs                 | 60 bu          | 12.5               |
| Oats         | Early April        | well-drained          | 90-100 lbs            | July                   | 34-38 lbs              | 80 bu          | 12-12.5            |
| Spelt        | April              | poorley-drained       | 160-180 lbs           | Mid-July, Early August | 40 lbs                 | 90-100 bu      | 14                 |
| Spring Wheat | April              | well-drained          | 90-180 lbs            | August to September    | 60 lbs                 | 40 bu          | 13                 |



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**6. Proper Rotations** – Crop rotations are one of the most powerful tools that a farmer has for controlling weeds and maintaining fertility. The success of grain production on the farm will be highly attributed to the rotation. It is generally unsuccessful to grow continuous crops in an organic system. To build a crop rotation you must weigh the benefits of each crop, the needs of each crop, and what they contribute to the rotation. For examples, corn is a heavy nitrogen feeder. It might be best to grow corn after a legume plow down. Soybeans make their own nitrogen but are heavy potassium feeders. It might be best to grow soybeans after corn. Small grains have lower nutrient requirements and may be best suited grown after corn or soybeans.

**7. Proper Fertility** – Managing the fertility of annual crops grown organically can sometimes be a challenge. The first step is to soil test to determine the levels of nutrients available in the soil. The soil test will also identify any major nutrient deficiencies in the soil. It will be important to correct these deficiencies to grow a high yield and quality crop. Soil fertility can be improved through the use of legumes, manures, composts, and other certified organic fertility sources.

**8. Weed Control in Grains** – Weed control is a major challenge for organic farmers. Weed pressure must be managed through an integrated approach. The first step to weed management is through a well-designed crop rotation. The time of seeding, seeding rates, and row widths can be modified to give crops a competitive edge over the seed. The last control measure is through mechanical cultivation. There are a variety of tools available to control weeds mechanically. There is often a learning curve associated with cultivating field crops. Proper timing and experience will determine success of weed control under mechanical cultivation.

**9. Harvesting & Storing Grains** - Harvesting grains at the proper moisture content will prevent spoilage and/or additional costs associated with drying the grains. Due to the variable weather in New England it sometimes is difficult to harvest grains at moisture that is sufficient for long term storage. For the most part, small grains, soybeans, and high moisture corn can be harvested a moisture that will require little to no additional drying costs. Small grains harvested over 12% moisture should be put in a bin with aeration. Soybeans should be stored at 13% moisture. Corn should be stored at 15% moisture. High moisture corn can be stored successfully at a wide variety of moistures. Regardless, grain storage will be necessary. It is best to have metal bins with aerators. However, other makeshift options can be implemented when the tons of grain to be stored is minimal. There are a variety of options across all price ranges. It is best to check with other farmers to figure out what types of storage works best for them.

**10. Feeding & Processing the Grain** – Once you have the grains in the bin the next step is to figure out how they will be processed and fed to the animals. Most grains require some type of processing before they are fed to dairy cows. Most grains will need to be processed through a grinder/mixer or a stationary hammermill. To figure out what the grains are contributing to the overall ration you will want to have the grains tested. In addition, you will want to learn how to build these grains into the ration. This may involve working with a nutritionist or other knowledgeable source.

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