



## Most Asked Agronomic Questions

### Bulletin 760

## Chapter 13

### Miscellaneous

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#### **1. How to improve drainage when water sets over tile?**

The probable cause of this problem is soil compaction. There are several approaches to help alleviate this condition. First, the use of a blind inlet would involve excavating and then putting a permeable material like gravel over the drain. An alternate approach would be to provide additional surface drainage by land forming. This would eliminate problem low spots. Finally, a farmer may choose to adopt a different tillage program. Good results with ridge till systems have been demonstrated on poorly drained soils.

#### **2. Does the use of 25 foot tile spacings on Mahoning soils increase yield in field crops?**

Normally, 45-55 foot tile spacings are recommended on Mahoning soils. Using 25 foot tile spacings may result in a slight yield increase, but the profit from this yield increase could not repay the installation costs. We recommend that more attention be paid to surface drainage. A farmer may want to consider the use of land smoothing.

#### **3. Yellow, water-damaged soybeans. Will these be helped by manganese and 28% N?**

The N fixing process will normally shut down if the root system of a soybean plant has been submerged. If N fertilizer is applied, it will tend to delay the resumption of N fixation. Therefore, unless the soybeans have been weakened by being submerged for a long period of time, the use of N fertilizer is not recommended.

The addition of Mn is only recommended if the Mn level of the plant is low. This is often the case in soils which have high pH values.

#### **4. How to explain to farmers that shrinkage occurs in grain drying? How much is to be expected?**

There are two kinds of grain shrinkage. The first is simply due to the removal of water. When the grain is dried, the seeds "shrink" to a smaller size because the space originally occupied by water is no longer needed, resulting in an increase in seed density (test weight). After drying each seed will weigh less

because the weight of water is gone. It takes fewer pounds to make a bushel of grain. In corn and soybeans you can expect between 20% - 50% shrinkage from water removal alone.

The second type of shrinkage is dry matter shrinkage. This is usually associated with physical damage done to the seeds during the process of drying and handling. For example, small pieces of seed can be chipped off by the augers that move the grain. Normally, between 1/2% - 1% shrinkage will occur from dry matter loss.

### **5. Why does winter wheat not survive some winters? What can we do to prevent winter kill of wheat?**

The primary reason for winter kill in wheat is adversely cold weather and lack of snow cover. Whenever the temperatures drop to near zero and there is no protecting snow cover, there is a high risk that plant tissues will be destroyed by the extreme cold. Plants that have been weakened by other conditions (diseases, insects, etc.) are particularly susceptible to the stress of low temperatures.

Suffocation is another cause of winter kill in wheat. If ice forms on the soil surface, it can cut off the oxygen supply to wheat plants below. Also, puddling of water can reduce the oxygen flow to wheat.

A third cause of winter kill is heaving. Freezing and thawing of the soil can literally lift the wheat plants out of the ground.

There are two principal ways to protect a wheat crop against winter kill. Plant winter hardy varieties and plant at the proper time. Most stand losses are associated with late planting. Wheat should be seeded no later than 3 weeks after the fly-safe date.

### **6. What are some of the cultural practices for millet?**

The Foxtail millets are the most widely grown group of millets in this country. Their principal use is in hay production; occasionally they are fed green or turned into silage. The Foxtail group does not tolerate grazing but may be pastured in an emergency.

The Foxtail millets prefer a rich, loamy, well-drained soil. They are very susceptible to cold, especially when they are young. The seed can be sown broadcast from May to July at a rate of approximately 50 pounds per acre.

### **7. How can I increase my organic matter? How long a period of time will this take?**

The level of organic matter in a soil is determined by the environment in which the soil was developed. Moisture and temperature are two environmental factors that greatly affect the amount of soil organic matter. When organic materials are added to a soil, there will be a temporary increase in the organic matter content, but eventually this will return to the equilibrium level dictated by the environment. Changing tillage practices can cause a redistribution of organic matter. Under no-till levels of organic matter tend to increase while levels of organic matter lower in the soil profile tend to decrease. If you want to increase the organic matter of your soil and maintain it at this higher level, you must use annual additions of organic materials.

### **8. What effect does organic matter have on pH, fertilizers, and chemicals?**

Organic matter acts as a buffer for pH changes. It also buffers the absorption and release of fertilizers and various agronomic chemicals. Therefore, when high levels of organic matter are present, we normally see slower changes in the level of soil acidity and in the concentrations of other chemical constituents.

**9. What are the economics of crop scouting and management programs? Can they save money?**

The usefulness of such programs depends on each farmer's management skills. If he does not monitor his crops closely or is unable to recognize problems that occur, then a scouting program would be economically justified. A scouting program would be of little value to a person who has the ability and does monitor his crops well.

**10. Agri SC (soil conditioner) is marketed in our area. Is it of value? Any specific research on it?**

Research conducted by several private, independent sources has shown very little yield response from use of the Agri SC product.

Reference: Soil Conditioners, in *Compendium of Research Reports on Use of Nontraditional Materials for Crop Production*, NCR # 103 Committee.

**11. Will gypsum 'loosen' clay soils?**

Gypsum is actually calcium sulfate. Adding it to soils with a high clay content can improve the tilth of the soil. Usually, this effect is relatively short lived and requires the use of rather large quantities of gypsum.

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[Back](#) | [Table of Contents](#)