

Hints On Growing Spring Oats

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As the title infers, I am going to spend a lot of time writing about oats and ways that can effect an increase in yields in your fields.

Now I know that oats are not nor will they ever be, a major crop such as corn, soybeans, or alfalfa. However, Mercer County is a major producer of oats in Pennsylvania. Also, there are certain markets in the area that growers of oats can do very well in, if they have good, clean, quality oats to sell.

Growth And Development

Oats are an annual grass that does best growing a cool, moist climate. They require more moisture to produce a given unit of dry matter than any other cereal, except rice. Oats are especially vulnerable to injury by hot,

dry weather, particularly from the early heading stage through the kernel production. These are several of the reasons that the highest grain yields come from early planted spring oats.

The oat plant has two root systems, the seminal and the adventitious. The seminal roots originate during the development of the embryo. They consist of the primary roots (radicle) and two or three lateral roots that arise in the first node. Adventitious roots arise in the nodes of the main stem and of the tillers just beneath the surface of the ground. The adventitious roots constitute the major root system of the oat plant. A subcrown internode grows between the two root systems on an oat plant. This structure is able to elongate to place the coleoptile node, from which the adventitious

roots grow, about one inch below the soil surface. This is similar to the root growth pattern in corn. Like corn, the depth of planting does not have a great influence on the depth of the main root system of the plant.

The life cycle of the oat plant, from germination to the mature seed, can be divided into four stages. They are the vegetative, transition, reproductive, and seed stages. Each of these stages can be distinguished from the other by its morphological characteristics and the developmental events that occur in it.

In the vegetative stage, leaves, axially shoots (tillers), and the permanent root system (adventitious roots) are initiated and develop; the stem internodes are usually very short. The transition stage is of short dura-

tion and difficult to identify in the oat since it consists only of a slight elongation of the shoot top preceding the initiation of the panicle (head). During the reproductive stage, the panicle and its parts differentiate and develop and the internodes of the stem elongate. The seed stage begins with fertilization of the flowers and terminates with the maturation of the seed.

Factors That Influence Growth

Growth in the oat plant depends upon moisture, temperature, light, and soil. Moisture and temperature are the most important factors in the growth and development of oats. Light is important in the flowering process of the plant. Oats can grow in almost any type of soil, if the soil has adequate fertility.

Moisture

Oats require more moisture for producing the stalk and grain than any other cereal, except rice, and is the least efficient in the use of water. The precipitation that is received in the months of April to June principally determines oat yields. The height of the oats is likely to be short when the precipitation during this period falls below 8 to 12 inches. However, total precipitation alone usually means little if it does not come at the right times.

The critical stages of growth for having adequate precipitation are: (1)

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