SARE Project no: ENE02-073 Fact sheets

THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS COOPERATIVE EXTENSION
New Jersey Agricultural Experiment Station
www.rce.rutgers.edu

FS510

Fact sheet

Agri-Tourism Series

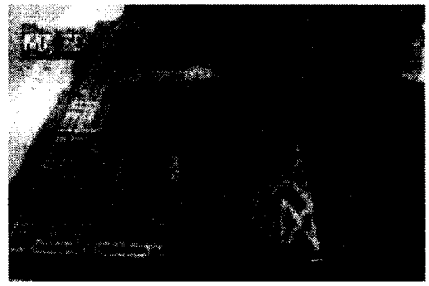
Growing an "A-maize-ing" Corn Maze

William J. Sciarappa, Ph.D., Monmouth County Agricultural Agent & Joseph Heckman, Ph.D., Extension Specialist in Soil Fertility

Mazes are a fun and effective way to increase farm revenue. When considering hosting a corn maze, review all state and local regulations, especially safety rules and fire regulations. Also, one should carefully consider the economical issues of design costs, land use, and market potential (See Table 1). The grower should then address important production practices. Breakage and lodging of corn stalks is often a concern in maintaining a maze through the fall season. Here are some suggestions for improving the standability of this entertainment field crop.

Proper variety selection is a key component in assuring the success of any maze. Talk with your field corn hybrid salesperson about hybrid seed selection. Vendors are very familiar with each hybrid's special characteristics. Let them know the purpose for which you will be growing this corn. Ask them to suggest hybrids that have good stalk strength and resistance to lodging. Also, ask about the plant heights of the various hybrids that they suggest. Many New Jersey growers choose stalk heights from 7–9 feet tall. Let your supplier know that grain yield potential is not the primary consideration in the variety selection.

Stalk rot is one of the most frequently observed diseases that usually can be traced to stress occurring at some critical point in the growing season. Moisture stress, disease development, and improper fertilization are the most common risk factors for stalk rot. Have your soil tested and pay particular attention to the potassium fertility level. Potassium (K) and chloride (Cl) are two nutrients that are critical to reducing the incidence of stalk rot and lodging. Optimum levels of potassium fertility can strengthen the corn stalk and reduce lodging. For soils that test in the medium range, apply 200 pounds of potash (K_2O) per acre. For soils that test in the high range, apply 100 pounds per acre of K_2O. Broadcast apply the potassium fertilizer just prior to planting. Use 0-0-60 or



potassium chloride, also known as muriate of potash, as the potassium source. Also, check the soil pH and apply limestone if recommended by soil test.

Plant the corn at a moderate plant population such as 20,000 plants per acre. Higher plant populations cause crop crowding, which leads to thinner plant stalks and susceptibility to lodging. Rotate the crop to a new field to avoid a build up of corn rootworms, and other diseases and pests that can weaken the root system and cause lodging. This is especially true in Northwestern New Jersey where northern and western rootworms are increasing even in a corn-soybean rotation. Resistant field corn hybrids or soil insecticides may be needed. Also, consider growing a *Bacillus thuringiensis* (Bt) hybrid. This genetic trait gives the corn plants resistance to European corn borer injury, which weakens the stalk and promotes lodging. Such varieties may lower pesticide applications which reduce exposure, and increase cost savings. Regulations, however, require that you must also grow some non-Bt corn in the same field so as to decrease the potential for creating future generations of resistance to the Bt technology.

Be careful to avoid excessive applications of nitrogen fertilizer. Remember, you're not growing for maximum yield. The total nitrogen rate for the season should not exceed about 125 pounds per acre. Adjust this rate

downward if the previous crop was a legume or the field has a history of manure or compost application. In these situations, use the pre-sidedress soil nitrate test to determine credits for nitrogen available from the soil.

Plant this special purpose corn crop later than is typical for corn grown for grain—around mid to late May or about 2–3 weeks later than normal. This delayed planting date helps to ensure better standability late in the season, and hopefully until Halloween. Also, the foliage may stay greener longer, and this increased moisture content will minimize fire hazards. Consider drilling your planting to strengthen corn rows, reduce wind sheer, and inhibit "lane changes" by excited customers. Only attempt this creative approach if your fields have a low weed pressure and a dependable, season-long herbicide program because there is no opportunity to use a sprayer or a cultivator. Another unorthodox approach is to seed alleyways with a grass cover crop of fescue or annual rye to reduce mud from foot traffic, and provide an inviting surface. Mowing the cover crop in the walkways can be a challenge in the maze.

Cutting the walkways requires special attention whether using herbicides with a hand sprayer, roto-tilling or mowing the young crop off at the proper time. The corn stage needs to be 8–10 unfolded leaves with the internal growing point well above the ground. The mower must cut this growing point off or regrowth will occur.

Decide on your intended field size, which often is from 1–3 or 5 acres. The current maze record is 11 ½ acres. A 3 acre field of corn with 125 bushels/acre returns about $375, but when used as a maze that can attract 1,500 customers at $4 a head, returns $6,000. Bear in mind the extra cash inputs for design, labor, maintenance, advertising, promotion, and insurance liability.

Farming equipment and marketing extras such as signs can be obtained by exploring specialty company web sites catering to specialized agri-business niches. Before you begin to plot out your design in the field, make sure you contact experts nationwide as seen in the following web site references (Table 1). Identify the available design resources and learn how hand-held GPS systems can be used to assist in field layout. So do your production, design, and marketing homework in advance, and then proceed to engage customers in the classic fun of playing in a modern day corn field.

Table 1. Corn Maze Information Sources

Purdue: *www.agry.purdue.edu/ext/corn/cgg5/maze.htm.* Numerous links to commercial corn maze sites.

The Boiler Mazer: *www.agry.purdue.edu/ext/corn/maze/index.html.* Demonstration of a 5 acre corn maze.

Great Adventure Corn Mazes: *www.cornmazes.com.* 208-357-7837. Planning, support, supplies, GPS design.

Precision Mazes: *www.precisionmazes.com.* 816-246-9056. The latest in GPS technology.

The Maize: *www.cornfieldmaze.com.* Photo on front page. 801-427-8323. Getting started information.

Mazeplay Inc.: *www.mazeplay.com.* 208-357-7837. Creative designs, products, and nationwide locations.

Corn Maze Guidelines: *www.firemarshal.state.md.us/cornmaze.htm.* Safety, local regulations.

Mention or display of a trademark, proprietary product, or firm in text or figures does not constitute an endorsement by Rutgers Cooperative Extension and does not imply approval to the exclusion of other suitable products or firms.

Desktop publishing by RCE/Resource Center

Published: June 2004

RUTGERS COOPERATIVE EXTENSION
N.J. AGRICULTURAL EXPERIMENT STATION
RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY
NEW BRUNSWICK

Distributed in cooperation with U.S. Department of Agriculture in furtherance of the Acts of Congress on May 8 and June 30, 1914. Rutgers Cooperative Extension works in agriculture, family and consumer sciences, and 4-H. Dr. Karyn Malinowski, Director of Extension. Rutgers Cooperative Extension provides information and educational services to all people without regard to race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Rutgers Cooperative Extension is an Equal Opportunity Program Provider and Employer.