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AgEds/Hort 465 Class: Horticulture Enterprise Management

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Abstract

In December 2012, the AgEds/ Hort 465 course, that is taught in all three semesters (Spring, Summer, Fall) of the school year, completed its second year at the Iowa State University Horticulture Research Station. The ISU College of Agriculture and Life Sciences, AgEds/Hort 465 course, which was introduced in Spring 2011, focuses on educating and training future growers in the management and operation of diversified horticultural enterprises on an Iowa farm situation.

As a capstone course, the syllabus is designed to provide an experiential learning environment for students to foster an appreciation of the business, production, and marketing complexities of a fruit and vegetable operation. The course is structured as a business and is managed through decisions made by students in four major areas: finance, operations, production, and marketing. Most financial, production, and marketing activities are done by the students enrolled in the course.

Keywords

RFR A1247, Horticulture, Leopold Center

Disciplines

Agricultural Science | Agriculture | Horticulture

AgEds/Hort 465 Class: Horticulture Enterprise Management

RFR-A1247

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Spring (AgEds/Hort 465 A)–Business planning and early season high tunnel production
Summer (AgEds/Hort 465 B)–Crop production and operations
Fall (AgEds/Hort 465 C)–Marketing and food safety and late season high tunnel production

Introduction

In December 2012, the AgEds/ Hort 465 course, that is taught in all three semesters (Spring, Summer, Fall) of the school year, completed its second year at the Iowa State University Horticulture Research Station. The ISU College of Agriculture and Life Sciences, AgEds/Hort 465 course, which was introduced in Spring 2011, focuses on educating and training future growers in the management and operation of diversified horticultural enterprises on an Iowa farm situation.

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Course Structure

The on-farm learning gives students hands on experience in horticultural enterprise planning (business plan development, budgeting, crop scheduling, record keeping, and marketing) and crop production (crop nutrition, crop protection, food safety, and post harvest handling).

2012 Overview

Crop production during 2012 proved to be extremely challenging due to the drought. In order for students to gain the full benefit of the experiential learning and to minimize peak labor demands, crop planting occurred over a three month window which started in late April. As a result of this extended planting window in combination with drought and high temperature conditions at critical crop phenological growth stages, several crop failures occurred this season.

Despite the challenging year, there were a couple of notable achievements. First, the purchase and construction of a Premium Round Style High Tunnel (30 ft W × 12 ft H × 96 ft L). Following the recommendations outlined in the 2011 AgEds/ Hort 465 student's business plan, a tunnel was purchased to meet early- and late-season crop production needs for the class. Second, and again following the recommendations of the 2011 class, the first perennial crop was established, and approximately one tenth acre of asparagus was planted in late April.

Field Production. The spring 2012 class selected four field crops for summer production based on market demand and crop potential, these included; one-eighth acre tomatoes (*cv.* Celebrity), one-fourth acre peppers (*cv.* King Arthur), one-third acre

onions (*cv.* Copra and Red Zeppelin), and one-half acre watermelons (*cv.* Sugar Baby).

Soil analysis results indicated that the field plot was in the medium nutritional range, but at the lower end of the spectrum, for both potassium and phosphorous. A general fertilizer application of approximately 90 lb/acre of K_2O and 125 lb/acre of P_2O_5 was broadcast over the plot and then incorporated with the final tillage operation. All four crops were planted in black plastic mulch with sub-surface drip irrigation and cornstalk mulch between the rows. The use of the mulches and drip irrigation were in accordance with the sustainable crop production practices determined by the class. These practices are intended to promote long term soil health, reduce weed pressure and chemical inputs, as well as to reduce maintenance needs during the growing season. During the growing season, irrigation and fertigation scheduling was determined by crop type, the use of tensiometers, and phenological growth stages.

Tomatoes. Transplants were hardened or acclimatized to growing conditions for approximately 10 days before planting in the field (May-June). Staking and tying occurred approximately three weeks after planting. Unfortunately, due to the extended period of exceptional heat that occurred during

flowering and the main fruiting period, the quality and yield of the crop were negatively impacted, resulting in a very low marketable yield.

Watermelon. The crop was direct seeded over eight weeks in four planting intervals to minimize labor demand. A variety of abiotic and biotic factors resulted in substantial crop failure in the watermelon crop. Rodent pressure and early heavy wind damage destroyed much of the first two plantings while the combination of the black plastic and heat led to internal fruit degradation on the latter two plantings.

Onions. Onion sets were purchased and kept in a controlled environment and acclimatized for a short period prior to planting (late April). Yellow and red cultivars were selected for production after determining marketability and local demand. The onion cultivars yielded relatively well but some crop loss was experienced post-harvest during storage.

Peppers. This crop was grown for ISU Dining, which wanted sweet red peppers. Apart from initial sunburn on the early fruit, the crop stood up well to the adverse weather conditions. Production was cut short by an earlier than normal fall frost.