COOPERATIVE EXTENSION
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THE ASPARAGUS INDUSTRY IN SAN JOAQUIN COUNTY

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The asparagus industyy in San Joaquin County is a dynamic and expanding one; the production of asparagus in 1979 approached 70 million pounds with a cash value of almost $30 million. In terms of crop importance in San Joaquin County, this delectable vegetable ranks ninth in production and tenth in cash value. San Joaquin County continues to rank as the leading asparagus producing county in the United States, as well as in California.

The bulk of the industry is located on the rich organic peat/muck soils of the Sacramento-San Joaquin Delta with some additional acreage on sedimentary (mineral) soils west of Stockton and south to Tracy. In addition, a small pocket of production exists along the Mokelumne River near Lockeford. Production over the last five years has averaged 3500 lbs/acre, up some 500 pounds over the previous 5-year period. Most of this increase can be attributed to development of better varieties by the University of California and improved cultural practices like better weed control, improved water management to reduce disease incidence, and avoiding overcutting of the beds.

The crop likes a moderate-to-warm environment during the cutting season (65°-85°F). The cutting season normally runs from early March until about the 10th of June and does not exceed 80 to 90 cutting days to insure the vigor of the crowns.

Principal varieties are UC 157 hybrid, 800 series, and UC 72. Growers are enthusiastic about the development of the UC 157 line because of its yield potential, development of large, tight-tipped spears, and possible use for non-selective mechanical harvest. Its hybrid vigor tends to make it more tolerant of diseases such as Fusarium wilt, but not resistant. The variety was developed by Dr. Frank Takatori at U.C. Riverside in a breeding program supported by grower funds. New lines currently being developed by Dr. Takatori offer the potential of yields up to 8,000 lbs/acre and even higher.

Commercial asparagus plantations may be established in one of three methods: Crown planting (the traditional technique), direct seeding, and use of speedling (3-month-old) transplants. Direct seeding is generally not practiced in this area due to local industry unhappiness with spear size, but it is practiced widely in Southern California (Imperial Valley and Orange County). The speedling transplant technique was pioneered in San Joaquin County by Dr. Takatori, Brian Benson at U.C. Davis, and Bob Mullen, U.C. Farm Advisor. In this technique plants are reared from seed in a greenhouse until they are 10 to 14 weeks old, and then they are "hardened off" and transplanted into the prepared field in 8- to 10-inch-deep trenches, receiving a half-pint of water from the transplanting unit as they are set. The field normally is preirrigated 10 to 14 days before transplanting. The best time for using this technique is during April and May when the ground can be worked up properly and before extremely high temperatures develop. Initial plantings look quite promising. The technique achieves three goals: 1) better stand uniformity; 2) a savings of 7 to 9 months in getting into production over standard crown planting; and 3), spreads a limited amount of available hybrid seed over a larger area.

The traditional planting method involves putting in a crown nursery in late March to mid May and raising the plants on 40-inch beds with twin rows spaced 12 to 14 inches apart with plants 3 to 4 inches apart down the row. At the end of the growing season (late November-December), the now one-year-old crowns are dug and placed in cold storage with occasional fungicide treatments until planting early in the next season. The fields should be furrowed out in late winter when conditions are right, and then the year-old crowns are placed in the bottom of the 10- to 12-inch trenches, spaced 9 to 12 inches apart down the row; the trenches (eventual beds) are spaced 6 feet apart. The crowns are covered with 3 to 4 inches of soil to protect them from late winter/early spring frosts. They are then allowed to grow all year without any cutting pressure. The trenches are eventually filled during the course of the year as part of cultivation to reduce weed competition. Often post emergence herbicides are used to reduce weed pressure as well. At the end of the second season, after a killing frost (November-December), the crop fern is mowed/cut off and bed shaping occurs over the winter. Actual harvest begins in the third year but only for a limited time (2 weeks to 30 days), and then the crop is allowed to go to fern for the rest of the season. The fern season is critical because it is during this period that carbohydrates are formed and transported to the crown; the more carbohydrate storage, the better production will be in the following season. The next season (fourth), the first full cutting season occurs (all harvest is done by hand). Cutting occurs for 80 to 90 cutting days and no more because of danger of hurting crown vigor. Good care will result in beds producing well for many years, although normal bed life is about 10 years. Once a bed planting drops below 2,000 lbs/acre production it is normally plowed out as uneconomical and it should not be replanted to asparagus for at least 10 years.

Major weed problems include: bermudagrass, field bindweed (morning glory), yellow nutsedge, and kelp. Annual weeds like watergrass may pose problems on young plantings.

Major disease problems include: Fusarium Wilt decline, Phytophthora root rot, and Asparagus Rust.

Major insect problems include: garden centipede, cutworm, thrips, and aphids.

Fertilization is not normally practiced in asparagus on peat soils, except on brand new plantings, due to lack of plant response. On mineral soils, about 60 pounds of nitrogen, 50 to 60 pounds of phosphorus, and, where needed, 80 to 100 pounds of potassium are applied to established plantings at the start of the fern season in early summer.

Irrigation is normally practiced in the summer ferning season two to three times on mineral soils but only one or two times on peat soils. Normally, winter rains are sufficient to carry the crop during the cutting season, although occasionally one irrigation may be applied on the lighter-textured mineral soils.

The crop is marketed principally through the California Asparagus Growers Association. In the past, 1/3 to 4/10 of the crop went to fresh market and the balance went to the freezers and canners. In recent years, 1/2 or more of the production has gone to fresh market due to high carryover of the processed pack because of depressed economic conditions and reduced demand for the canned product. Imports from Mexico and Taiwan into the United States remain a threat but have stabilized in recent years. Cheap harvest labor in foreign countries, principally Mexico and Taiwan, caused the U.S. to lose its market for white asparagus in Europe and

at home and caused a rapid decline in acreage across the U.S. and locally from 1967 until a few years ago. New varieties, better marketing techniques, and possible new product packaging and uses have created a renewed interest in recent years, and the industry is cautiously expanding and holding its own. Problems (diseases and transportation costs) in foreign producing areas offer a brighter future for the U.S. asparagus industry and particularly the local industry.