

Market News 1977 survey: (1) 42 percent of those receiving Federal-State Market News indicated that agricultural production was their primary function or occupation; (2) the largest single category of those responding (35 percent) received gross agricultural incomes greater than \$200,000 per year; (3) 24 percent of the producers in the survey received gross agricultural incomes of less than \$20,000

annually; (4) nearly 29 percent of the agricultural producers responding had gross agricultural incomes greater than \$200,000 per year; (5) 46 percent of the respondents in business and industry had gross agricultural incomes greater than \$200,000; (6) mailed reports were the most important source of market news for most respondents; (7) buying or pricing decisions were the primary use of Federal-State

Market News for about 43 percent of those in the survey, whereas the second most important use was for following market trends; (8) a relatively high number (35 percent) placed an annual value of more than \$50 on the market news they received.

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Thinning methods influence celery-stalk size

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Size variability in celery at harvest time is a continuing concern to commercial growers. Direct-seeded celery fields produce only about 45 to 70 percent of their yields in the preferred size (2 to 2½ dozen stalks per carton). The remainder of the crop is in the less desirable larger and smaller sizes. The large size (1½ dozen stalks per carton) comprises from 5 to 15 percent of total yield. Small sizes may account for almost one half of the harvested crop in some cases, with considerable cost to the grower.

In the central coast area, common yields of 800 to 1200 crates per acre could be increased 100 crates or more through more accurate seeding and early thinning, producing 10 to 20 percent more medium-sized stalks. Better seed spacing, more uniform emergence, and reduced thinning shock would result in less competition among plants and uniform growth. This is based on data indicating that size variance and high percentages of small-sized stalks result from slowly emerging plants. The most rapidly emerging plants become the largest stalks in direct-seeded fields and stunt the growth of their competitors.

Procedure

The three-year study evaluated the effects of seedling age at time of thinning, thinning methods, and seedling crowding on the uniformity of stalk size at harvest. The treatments were based in part on plant size, with early thinning occurring at the one- to two-leaf stage and late thinning at the four- to five-leaf stage. Two thinning techniques were used at each stage of plant growth on hoeing, to evaluate current grower practice, and thinning with a knife, to minimize physical disturbance of the plant. Two additional treatments were based on relative plant size, with small plants being knife-thinned at both the one- to two-leaf stage

and at the four- to five-leaf stage. The last treatment, examining extreme crowding, was knife-thinning at the six-or-more leaf stage when plants were becoming extremely crowded.

Each plot was 20 feet long; the plants were thinned to six inches apart on a 42-inch double-row bed. The celery variety, 'Florida 659,' was used in all three experiments. In each experiment there were five replications.

In the first year's trials, "raw" seed (uncoated) was planted at 1/3 pound per acre; two subsequent years' experiments used coated seeds planted 0.9 inches apart. Both of these planting methods have been common in the industry, although the use of coated seeds and precision planting has recently become widespread.

Plots were on soil with clay loam texture of the Watsonville series. Two experiments were conducted in Pajaro Valley and the third in the Salinas Valley. Three irrigations were required to germinate celery in all three fields. Stalks were cut by hand and graded according to weight and size to fit market standards.

Results

Crowding was the most important factor in reducing total yield and uniformity of stalk size at harvest (see table). Early thinning, regardless of method,

resulted in the most uniform sizes at harvest and highest yield in weight. Hoe-thinning delayed growth, and actual stunting became increasingly severe the older the plants were when thinned. In raw-seeded plots, yields of early hoe treatments were significantly below those of knife-thinned treatments. However, the precision-planted, coated-seed trials showed a significant difference between knife-thinning and hoe-thinning at the 5 percent level in weight yield, but not significant in yield of 2- to 2½-dozen-size stocks. Later emerging or weak-growing seedlings caused considerable yield reduction. Additional growing time to allow plants to size would not have been feasible because quality was declining from increasing pithiness in the celery petioles. Extreme crowding resulted in the greatest spread of sizes at harvest time. Larger, more vigorous plants tended to compete with small plants.

Several things growers can do to produce a more uniform crop include level bed preparation and planting so seeds are at the same level and correct depth in the soil. Precision planting at .9 inches between seeds reduces seedling competition and facilitates thinning. This may help reduce thinning shock by reducing plant disturbance.

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Celery Thinning: Effects of Timing and Method in Direct-Seeded Fields, 1974-77

Treatment	Celery yield lb/100 stalks			2 & 2½ dozen sizes (percent)		
	1974	1976	1977	1974	1976	1977
Knife-thinned, 1-2 leaves	268.2a*	209.1a	246.3a	87a	95a	86a
Hoe-thinned, 1-2 leaves	246.6b	198.5a	235.4a	70b	91a	82a
Knife-thinned, 3-4 leaves	233.6c	184.9b	189.9b	55c	70b	71b
Hoe-thinned, 3-4 leaves	203.0d	152.7d	166.7c	50c	58cd	60c
Small plants selected—early	209.0d	166.9c	162.3c	50c	63c	62c
Small plants selected—late	144.4f	157.2d	154.1c	30d	55d	42d
Extreme crowding	163.2e	147.5d	125.7d	25d	48e	24c

*Values not having a common letter are significantly different at the 5 percent level.