Figures 8 through 11 are climatographs for Arizona and Colorado. Fig. 12 is a composite of head lettuce producing areas of the three states with a line enclosing the 90% area—illustrating establishment of an ideal day-night temperature regime.

Application of this method to selection of prospective lettuce-producing areas can be illustrated by considering, for example, the climatograph for Eureka, California. This area lies entirely outside the ideal temperature zone because it is too cool, particularly during the daytime. Temperatures at Graton, California, on the other hand, indicate possible growing seasons in both spring and fall (see fig. 13). Records confirm this situation in part, because the Cotati Valley in Sonoma County was a lettuce seed producing area during World War I.

The Backus Ranch climatograph, fig. 14, represents the climate of south-sloping lands on the north side of the Antelope Valley in western Mojave Desert between Mojave and Gorman, California. This is an area in which no head lettuce had been grown. Inquiry concerning climate suitability was made as land was being prepared for trial plantings. Two possible crop seasons were indicated, and an encouraging prediction was made, particularly for a fall crop. A yield of 325 cartons per acre was considered necessary for a profitable venture. Two 10-day-spaced August plantings produced 400 cartons per acre in 70 days and 625 cartons per acre in 74 days, respectively, of exceptionally high quality lettuce. Low yield of the first planting reflects a poorer stand because of high soil temperature effects on seed germination. A rapid temperature rise in late spring, and the high level reached, make the quality of a spring crop doubtful.

Climatograph studies comparing quality of most annual crops at harvest time will be important. Optimum temperatures for both seed germination and growth can be studied by using other sections of the temperature diagrams. With perennials, entire climatographs are compared. The position, the slope or angle of the figure, its length and the interval (distance) between monthly points are all needed for relation to detailed phenology when studying plants exposed to year-around temperatures.

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PREDICTION OF FINAL FEEDLOT

. . . *from observations at*

W. N. GARRETT · G. MATKIN

A NUMBER OF MANAGEMENT and economic decisions concerning feedlot practices and length of the feeding period could be made with more precision if it were possible to predict accurately a long-term feedlot gain from a short-term observation. The results presented here are from a correlation and regression analysis of 28- and 56-day rates of gains with overall average daily gain.

Data from 533 steers fed free-choice, high-energy rations capable of promoting maximum or near maximum gains were used. Additional criteria were availability of individual shrunk weights of all animals at 28-day intervals with a minimum

TABLE 1. INITIAL WEIGHT (IN GROUPS), AND AVERAGE DAILY GAINS FOR TEST ANIMALS

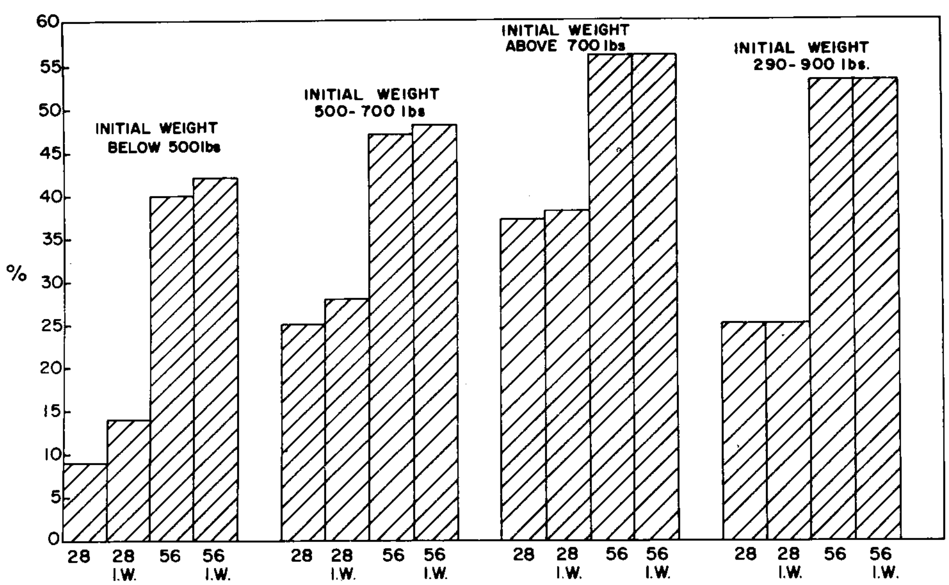
No. of animals	Initial weight, lbs		Average daily gain, lbs		
	Range	Mean*	28-day gain	56-day gain	Overall gain
174	290–499	422±4	2.02±.05	2.51±.04	2.55±.03
229	500–699	612±4	2.93±.08	2.83±.04	2.70±.03
130	700–900	757±4	2.29±.11	2.54±.06	2.69±.04
533	290–900	585±6	2.48±.05	2.65±.03	2.65±.02

* With standard error of means.

TABLE 2. ALL DATA—CORRELATION COEFFICIENTS (28- AND 55-DAY GAIN vs. OVERALL GAIN), THE PREDICTING EQUATIONS AND AN ESTIMATE OF THE ACCURACY OF THE PREDICTED GAIN

	Correlation coefficient	Predicting equation[a]	Precision,[b] lbs/day
28-day gain	.50	$Y = 0.20X_1 + 2.14$	±.40
56-day gain	.69	$Y = 0.48X_2 + 1.36$	±.28

[a] Y is overall average daily gain, X_1 is 28-day average daily gain and X_2 is 56-day average daily gain.
[b] The predicted gain will ordinarily be within these limits of the actual gain.



Percentage of variation in overall average daily gain that can be explained by feedlot gains made at 28- or 56-day intervals
(28I.W. and 56I.W. indicate the same comparison when initial weight was also considered as a factor influencing the variation.)

GAINS

28 or 56 days

total feeding period of 112 days. The weights were taken after about 16 to 18 hours without feed or water. All animals had received an implant of diethylstilbestrol and remained on the same ration throughout the feeding period.

Standard methods were utilized for computer calculation of simple and multiple regressions and correlation coefficients. The data were handled either in three separate weight classifications or as one large sample. In all cases simple regressions of 28- or 56-day gains against overall daily gains and multiple regressions of 28- or 56-day gains plus initial weight with overall daily gain were determined.

The graph illustrates the percentage of variation in overall daily gain that can be accounted for by either 28- or 56-day gains with, and without, adjustments for initial weight. It is apparent that the precision with which one can predict overall weight gain of individual feedlot steers from either 28- or 56-day gains is not good enough to be a very effective management tool.

The illustration also shows that the ability to predict overall gain of light steers is less than for heavy steers. The reason is not that gains made by heavy steers are less variable, but that heavy cattle are fed for shorter periods. Therefore, 28 or 56 days is a larger portion of the total feeding period. In other words, days on feed, not initial weight, is responsible for the apparent increase in precision of predicting gains of heavy cattle as compared with light cattle. This is also shown in the illustration by comparing the initial, weight-adjusted figures with those which have not been adjusted. It is evident that adjustment for initial weight does not significantly improve the accuracy of predicting overall gain either within a weight classification or over the entire range of weights.

Table 2 gives the correlation coefficients, predicting equations, and an approximation of the accuracy of the predicted gain using either the 28- or 56- day average daily gain. These correlation coefficients are highly significant and indicate that a relationship does exist between early weight gain and overall weight gain of feedlot steers. However, the precision with which overall gain can be predicted is probably not high enough for use in practical management situations, since a considerable investment in man hours and equipment is necessary to determine the short-term gain of individual animals.

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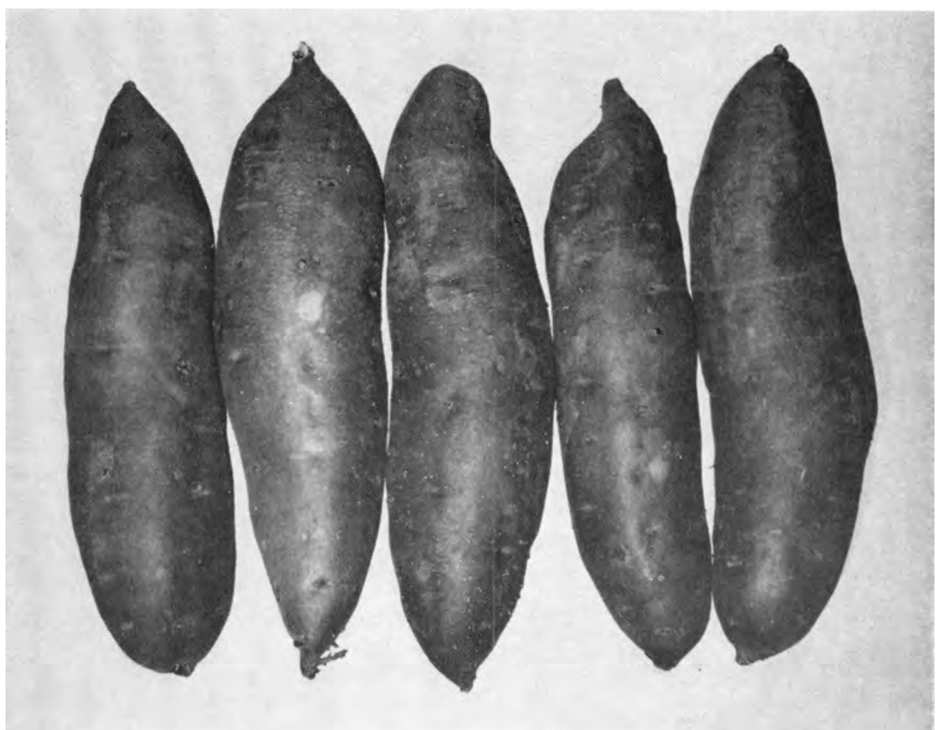
RUBY

. . . a newly-released, nematode-resistant sweet potato variety



The Ruby sweet potato has been grown for several years under the U. C. number, 2095. As the name suggests, it has a bright ruby skin that makes it attractive in the market. The flesh is deep orange and is a moist or melting type when baked. The eating quality compares favorably with that of the Puerto Rico strains. Typical roots are 5 to 8 inches long and 2 to 2½ inches in diameter. Ruby is highly resistant, but not immune, to Meloidogyne incognita nematodes. In soils highly infested by nematodes, occasional small galls have been found on the feeder roots. In trials it has consistently outyielded Velvet. The acreage has increased each year and now represents about 10% of the industry in the San Joaquin Valley.—*G. C. (Jack) Hanna, Olericulturist, University of California, Davis; Robert W. Scheuerman, Farm Advisor, Merced County; and George A. Marlowe, Jr., Agricultural Extension Vegetable Crops Specialist, Davis.*