

# Small-nut Almonds

progress in development of varieties consistently producing small sized nuts

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The California almond industry is faced with the problem of supplying relatively large quantities of small sized almonds for candy bar manufacture. Present varieties do not consistently produce sufficient amounts of the required sizes—and the supply fluctuates from year to year.

Nut size is a variable characteristic which may be influenced by numerous factors. Regardless of its source, a small nut variety must meet four requirements: 1. Size and shape of kernels must suit candy manufacturers. Kernels should be more than 30 to the ounce, preferably 36 to 40, and not too plump, probably less than eight millimeters—approximately one-third inch—thick. 2. Kernel size must be shown to be a varietal characteristic and not an environmental effect. To determine this, grafted trees of selections under test should be grown in a single plot away from their place of origin. In addition, these trees should be observed for several years. 3. The variety must be capable of being grown profitably. Principal tree characteristics which contribute toward this end include high yield, resistance to disease, and ease of harvest and hulling. 4. The kernel should have desirable characteristics in addition to size, such as attractive appearance, lack of pubescence, and freedom from defects, such as doubles.

A long-term program designed to develop varieties to meet the requirements of the small nut market is being carried out in two phases: development of new varieties by controlled breeding experiments, and search for and evaluation of promising trees reported by individual growers. These latter trees are referred to as grower-selections.

In 1948, five selections were made from a group of almond seedlings on test at that time. The selections were planted in various test plots in almond-growing districts.

At present, only one of those—seedling 24-6—appears worthy of continued test. Three other selections have been added to make a total of four showing promise. Eight others appear to have the proper size characteristics, but insufficient data are available for proper evaluation. All these selections are being grown for test purposes only.

During the 1954 season—with growers co-operating—a search was made for almond trees which might possess the required characteristics. Of a total of 52 such trees reported, 30 of them showed sufficiently outstanding characteristics to

warrant careful examination, seven were standard varieties growing under adverse conditions, and 15 could not be sampled. Of the group examined, seven were rated as outstanding, and 11 were rated as desirable but possibly too large for use as small-nut varieties.

## Program Continuing

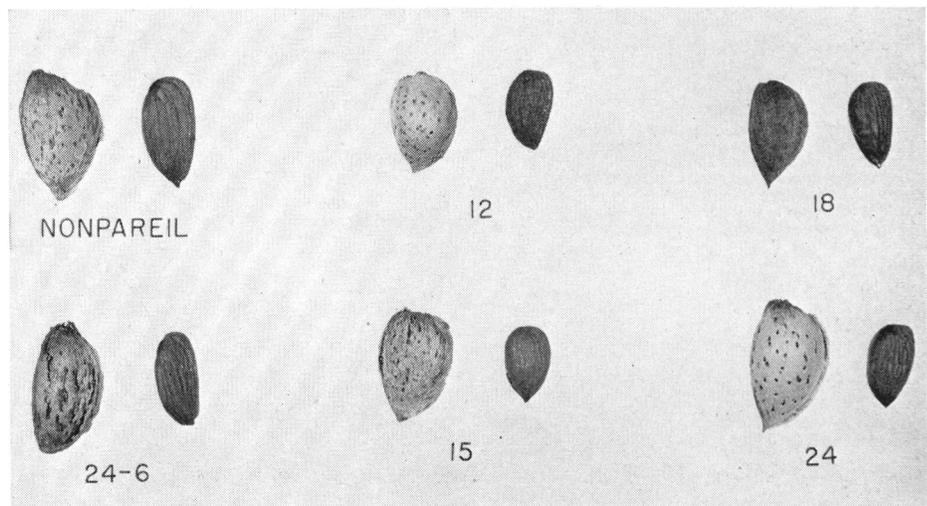
Continued examinations of the outstanding grower selections will be made. In addition, propagating wood will be obtained from each to be grafted in a test plot near Winters. Accurate comparisons should then be possible with trees of the same age in a single locality away from their place of origin.

The table shows part of the data collected concerning the more promising of these grower selections. These data represent single samples collected in a single year, in most cases from a single tree. Final evaluation cannot be made without several years' observations on trees of these selections growing in a single plot.

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Examples of some of the small-nut almonds compared to Nonpareil. Numbers are the seedling number.



Characteristics of the Nuts and Their Kernels Produced by Certain Selections Made by Almond Growers—Crop of 1954

Grower selection No.	Kind of shell	Shelling percentage	Nuts with good kernels (%)	Nuts with indicated kernels per ounce			Average thickness mm.	Doubles (%)	Gum (%)	Insect sting (%)	Blanks (%)
				30 or more (%)	36-40 (%)	Average No.					
8	soft	55	100	100	0	60	7.0	0	1	0	2
12	hard	46	99	100	29	46	8.2	0	0	1	0
15	soft	66	75	100	55	43	8.0	0	27	7	5
17	paper	63	91	100	2	60	7.1	0	3	0	1
18	paper	80	89	100	22	42	7.3	1	2	0	1
24	soft	47	100	100	25	44	7.4	0	0	0	1
27	soft	72	95	100	53	40	7.8	1	0	4	0