

TEN NEW WALNUT VARIETIE

The decision to introduce these new walnut varieties and the selection of names was made before the untimely death of E. F. Serr, who was in charge of the walnut breeding program in the Department of Pomology at Davis up to the time of his retirement in 1965. Assisted by H. I. Forde, Serr planned the crosses and made the selections. After his retirement, Serr continued evaluating the most promising selections coming from this work and in early December 1967 suggested that these ten be introduced.

Their excellent performance to date has stimulated an interest by the walnut industry and justifies naming and introducing them at this time. Introduction of the varieties is additionally appropriate during celebration of the University's centennial year since the varieties in themselves are another illustration of the contributions made by the University and its Agricultural Experiment Station during 100 years of service to the state and agriculture.

All of the names chosen for the selections are those proposed by Mr. Serr, except for selection 59-129. The suggestion was made to the Department of Pomology by members of the walnut industry that one of the varieties be named for Mr. Serr in recognition of his service to the University and to the fruit and nut industries in the state—the walnut industry in particular. His colleagues in the Department readily concurred in this suggestion and chose the name, Serr, for selection 59-129.

The text of the article introducing these varieties was essentially prepared by Serr when he submitted data requesting approval of the names and the introduction of the varieties.

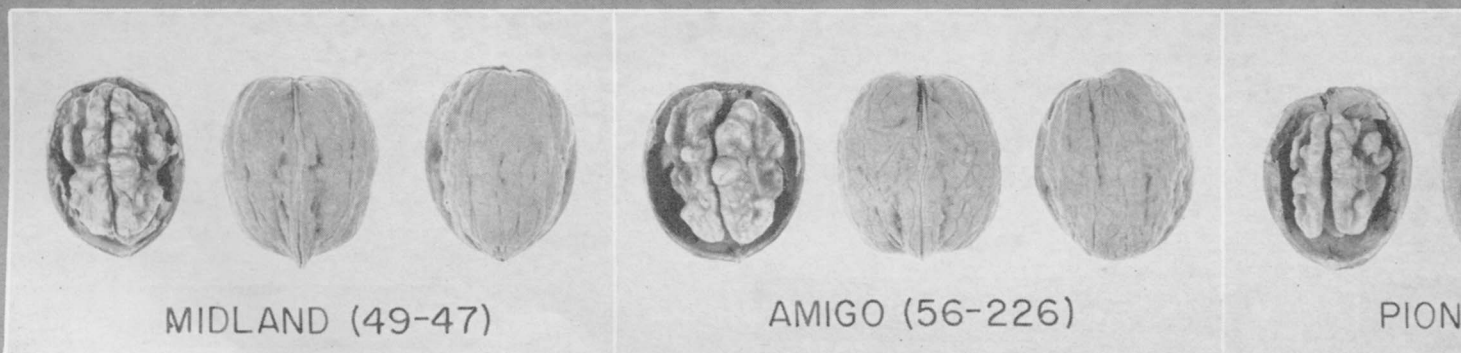
THE TEN NEW Persian (English) walnut varieties introduced here were selected from 1734 walnut seedlings grown through controlled crosses made between 1948 and 1958. Although none of the introductions is old enough to be considered thoroughly tested (as mature trees), their performance so far at Davis and in several walnut districts of the state justifies unrestricted planting wherever they are adapted to local conditions. Plantings of commercial size have already been made of some varieties in districts

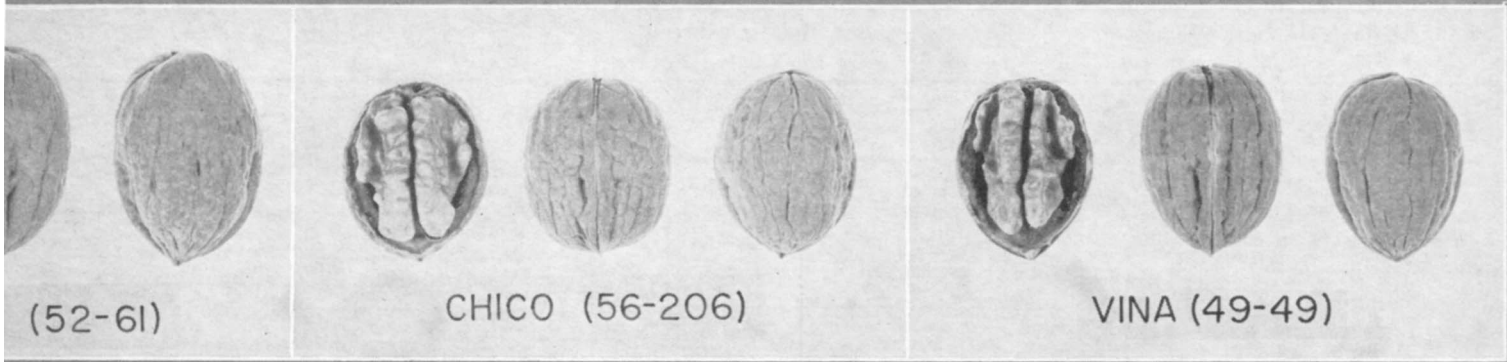
where they are best adapted. This interest, together with the specialized adaptability of certain of the varieties to meet specific needs of the California walnut industry, prompted the release of this large number of selections at one time. In addition to the adaptability to particular, though in some cases, rather limited districts, some of them are being released primarily because of their value as pollinizers.

The varieties are illustrated in the accompanying pictures. Their parentage,

seedling test numbers, and important tree and nut characteristics are listed in the table, and other information is discussed in the following paragraphs.

LOMPOC—A large pointed nut maturing at mid-harvest season or a little later. Heavy crops have been produced at Davis but quality has been injured by high summer temperatures in some years. Best yields and quality have been produced in cooler, semi-coastal districts and this selection is considered best adapted to





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E. F. SERR • H. I. FORDE

such districts. Control of husk fly and blight are needed where these pests are present. The name comes from the city in the Santa Ynez Valley where this selection has produced very heavy crops of good quality.

SERR—A large Payne-type nut with very high kernel percentage, high quality, and light color. The tree is very vigorous when young and grows rapidly. The nuts

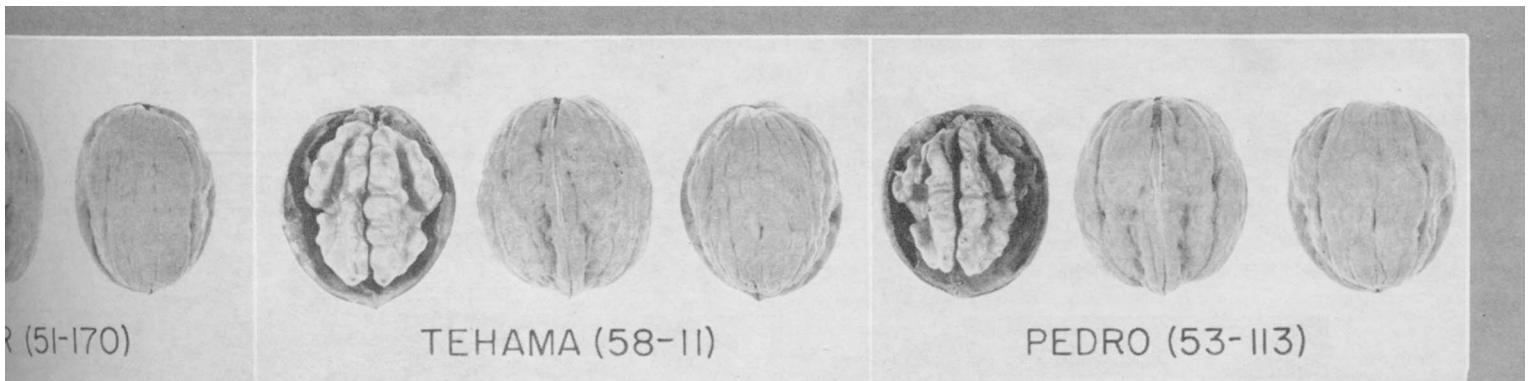
are more highly resistant to sunburn damage than those of any of the other selections. Therefore, the variety is especially well adapted to the hotter parts of the San Joaquin and Sacramento valleys, wherever late spring frosts are not a hazard. It is most promising for its cracking quality, although the thin shell and the seal are usually strong enough to also allow bleaching and in-shell sale.

GUSTINE—A long Eureka-type nut, pointed at the apex. The tree has grown well and produces large crops of high quality at Davis and in other parts of the central valleys. It needs heavy heading back to prevent breakage when young. Performance has been very good in the Gustine district on the west side of the San Joaquin Valley—from which the name was obtained.

CHARACTERISTICS OF NEW WALNUT VARIETIES BASED ON OBSERVATIONS IN UNIVERSITY ORCHARDS AT DAVIS
(5-YEAR AVERAGES 1962-1966)

Variety	Seedling test	Parents	Time of leafing, after Payne	Lateral buds producing pistillate flowers	Cheek diameter of nuts	Kernel wt. av. of 10 sound nuts	% Kernel, av. of 10 sound nuts	Light colored kernels	Shell seal grade*	Harvest period†
	Number		days	%	mm	gm	%	%		
Lompoc	52-48	Waterloo x Payne	5	50	37	7.7	54	70	G	M-L
Serr	59-129	Payne x PI 159568	5	50	36	8.1	59	96	F-G	E-M
Gustine	52-61	Waterloo x Payne	6	80	33	6.1	53	80	G	M
Chico	56-206	Sharkey x Marchetti	6	80	33	5.3	49	90	F-G	E-M
Vina	49-49	Franquette x Payne	8	80	32	4.8	49	70	G	E-M
Midland	49-47	Franquette x Payne	12	50	35	6.3	50	70	G	M
Amigo	56-226	Sharkey x Marchetti	14	80	36	6.3	54	80	P-F	E-M
Pioneer	51-170	Franquette x Payne	14	40	34	6.0	48	70	F-G	M
Tehama	58-11	Waterloo x Payne	18	80	34	7.0	53	70	G	M
Pedro	53-113	Conway Mayette x Payne	18	80	38	7.5	50	70	F	M-L

* E = excellent; G = good; F = fair; P = poor.
† E = early; M = mid.; L = late.



CHICO—A round nut of excellent color and quality at Davis. It sheds pollen late, after the peak of its pistillate flower receptivity. It is therefore suitable as a pollinizer for moderately early leafing varieties which shed their pollen early, such as Ashley, Marchetti, Lompoc, Serr, Gustine, and Vina. Size of nuts will be too small if pruning is neglected because trees will overbear, but satisfactory sizes have been maintained on good soils by consistent pruning. This selection is introduced primarily as a pollinizer but it may also be suitable as a main producing variety in some districts. It is named after Chico, the Sacramento Valley city near which it has produced well.

VINA—A pointed nut somewhat similar in shape to Hartley but with a less flattened base. This selection has consistently produced large crops of high-quality nuts at Davis and in other parts of the Sacramento and San Joaquin valleys. It is tolerant of high summer temperatures and seems to have some blight resistance, although this characteristic has not been fully verified. It needs consistent pruning to prevent overbearing and consequent reduction of quality. Several young orchards in the Vina-Red Bluff area have performed well, hence the proposed name, Vina.

MIDLAND—A Payne-type nut. This selection is a sister of Vina, but is a more vigorous grower and a little slower in coming into full bearing than Vina. It therefore does not require pruning as heavily as Vina, while a young tree. It has produced good crops of high quality at Davis but does not seem tolerant of very high temperatures and therefore is probably not suitable for the hottest parts of the interior valleys. It matures after the early varieties and therefore can be used for extending the harvest season. Its apparent adaptability to the middle section of the central valley including the Davis, Sacramento, and Stockton districts, suggested the name.

AMIGO—A round-type nut with high kernel quality but a poor seal in some years at Davis. A sister of Chico, it also sheds pollen late in relation to the peak receptivity period of its pistillate flowers and is therefore valuable as a pollinizer for other varieties. Being moderately late in leafing, it is suitable for pollination of varieties such as Hartley, Midland, Pioneer, Tehama, and Pedro. It is a good producer, with many clusters of four nuts. Although the variety can be faulted because the seal is too poor for in-shell sale

in some years when grown in the valley districts, its introduction is warranted because of the need for a late-shedding pollinizer. It is probably the most suitable and profitable variety now available to meet that need. The name was chosen because of its meaning, "friend," and because it was decided to give Spanish names to those varieties especially valuable as pollinizers.

PIONEER—Another sister of Vina, producing Payne-shape nuts. This one has borne heavy crops at Davis when eight to ten years old but is not as fruitful as Vina in the early bearing stage and so does not require such heavy pruning for crop control. So far it has never been badly injured by blight. Since the kernel percentage is not high but the shell and seal are satisfactory, this walnut is probably more suitable for sale in-shell than for cracking. The fairly late leafing makes it suitable for the upper Sacramento Valley and similar situations. A pollinizer is needed. The name was suggested because the selection seems able to produce with somewhat less cultural care, especially pruning, than more highly fruitful varieties.

TEHAMA—A Payne-type nut maturing in mid-harvest season. This selection is suitable for the upper end of the Sacramento Valley and other districts with similar frost and blight hazards. It is highly fruitful and suitable for both in-shell sale and for cracking. Consistent pruning is needed to prevent overbearing in young trees. Although highly fruitful, a pollinizer is desirable to help set adequately heavy crops, especially on young trees. The name was suggested because of apparent suitability of this selection for the walnut districts of Tehama County.

PEDRO—A large, fairly heavy-shelled nut maturing usually a little after the mid-harvest season. It is moderately late in leafing, but consistently produces many catkins and sheds pollen over a long period. It can be used as a pollinizer for most early varieties such as Ashley, Lompoc, Marchetti, Serr, Gustine, and Vina. Also it can be used as a main producing variety where late leafing and moderately late maturity are desired. Very high summer temperatures have injured shell and kernel quality some years in the hotter districts. The name, Pedro, is in keeping with the plan to use Spanish names for varieties which are good pollinizers.

E. F. Serr (deceased) was Lecturer and Pomologist, Emeritus; and H. I. Forde is Laboratory Technician IV, Department of Pomology, U.C. Davis.

Synovex-H has consistently stimulated daily gain and improved feed efficiency of feedlot heifers. However, this hormone does not inhibit the estrus cycle in heifers (which is responsible for excessive animal activity restricting feedlot performance during periods of hot weather). Melen-gestrol acetate (MGA), a new, synthetic high-potency hormone compound had previously been reported to increase feeding performance when added to the daily ration—and in the two tests reported here, also effectively controlled estrus. Both MGA and Synovex-H significantly increased daily gain and improved feed efficiency over the control animals. The MGA-fed heifers shrank less in transit than either the Synovex-H or control groups, although dressing percentage was about the same for all groups. Tenderness and fat content of rib and bottom round steak were not affected. The size of the rib eye from the MGA-fed heifers was slightly smaller than from the control or Synovex-H groups.

TABLE 1. BASIC RATIONS AND NET ENERGY VALUES
Ration Percentages Test 1 and 2*

Ingredients	A		B		C		D	
	%	%	%	%	%	%	%	%
Alfalfa hay	10	17	28	28	28	28	28	40
cottonseed hulls								
Barley	50	46	39	39	39	39	28	
Milo	26	23	19	19	19	19	18	
Supplement, 60%	5	5	5	5	5	5	5	
Molasses	6	6	6	6	6	6	6	
Fat	3	3	3	3	3	3	3	
Total	100	100	100	100	100	100	100	
Net energy for maintenance†	78.72	76.55	70.61	70.61	69.53	69.53	69.53	
Net energy for production‡	45.38	43.56	39.24	39.24	37.83	37.83	37.83	

* Test 1 fed rations A, B, and C; test 2 fed rations A, B, C, and D.

† NEm—Megacalories of net energy for maintenance per 100 lbs. of feed.

‡ NEp—Megacalories of net energy for production per 100 lbs. of feed.

TABLE 2. AVERAGE ENERGY VALUES
OF FEED CONSUMED

Treatments	Test 1		Test 2	
	NEm*	NEp†	NEm*	NEp†
Control	76.03	43.77	76.39	43.13
Synovex-H	76.25	43.42	76.27	42.46
MGA—lot 1	76.44	44.15	76.28	43.02
MGA—lot 1A	74.21	41.92		

* NEm—Megacalories of net energy for maintenance per 100 lbs. of feed.

† NEp—Megacalories of net energy for production per 100 lbs. of feed.