

Table 1. Comparison of yield and fruit size of 'Ebano' and three commercial cultivars at Cascata, RS, Brazil, 1979.

Cultivar	Year planted	Yield (kg/ha)	Avg fruit wt (g)
Cherokee	1975	6228	5.2
Comanche	1975	8213	5.8
Brazos	1975	3668	7.5
Ebano	1978	5952	5.0

thorny cultivars. Fruit size is about the same as 'Cherokee'. The fruiting habit differs from the commercial thorny cultivars, however.

'Ebano' does not develop into a compact hedge row as is characteristic of 'Cherokee', 'Comanche', and 'Brazos', but remains as "hills" since new canes are primarily produced from the crown rather than from roots.

'Ebano' ripens very late, averaging 40 days after 'Brazos'. Its late maturity is desirable for the processing industry of southern Brazil since it can be processed after the peak of peach harvest. Fruits are suitable for jams, jellies, and canned and frozen packs. It is also suitable for adding flavor and color to yogurt and ice cream.

Adaptability

'Ebano' has been tested only in the mild, humid climate of southern Brazil. It should be adaptable to areas of similar climate. No information is available on its cold hardiness.

Availability

Limited quantities of plants of 'Ebano' are available from Maria do Carmo Bassols, UEPAE de Cascata, Caixa Postal 403, 96.100, Pelotas, RS, Brazil.

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'Thompson' Lettuce¹

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Big vein has been a problem for growers of lettuce (*Lactuca sativa* L.), particularly in the western United States, for many years. The principal symptom, vein clearing, lends an unsightliness to the lettuce that may reduce its market value (7). During periods of low temperatures, big vein may delay or prevent head formation and thus reduce the harvest recovery (4).

Big vein is caused by a virus-like entity called big vein agent. It is transmitted to lettuce by a root-feeding fungus, *Olpidium brassicae* (Wor.) Dang. It is particularly severe during periods of low air temperature and in soils of high water-retention capacity (5, 6).

Several crisphead cultivars show varying, but modest, degrees of resistance to big vein. 'Thompson' combines resistances from several sources in a higher level than ever achieved in a crisphead cultivar.

The name 'Thompson' is in honor of the late R. C. Thompson, U.S. Department of Agriculture lettuce breeder for many years in Beltsville, Md., and Salinas, Calif., who performed pioneer work in interspecific hybridization, tipburn, and germination studies, developed the first lettuce cultivar using *L. virgosa* as a parent, and made the first cross in this station's big vein resistance work.

Origin

'Thompson' was released in 1981. It is derived from the cross 9747-1 x 'Calmar',

which was made in 1964 (Fig. 1). Line 9747-1 was derived from the cross 'Merit' x 2741, made by R. C. Thompson in 1957. Both 'Merit' and 2741, a crisphead breeding line, showed low to moderate resistance; 9747-1 was more resistant than either parent. However, it had poor horticultural characteristics and was crossed with 'Calmar', a popular, high-quality crisphead cultivar that also showed some degree of resistance. Progeny of the latter cross was selected for big vein resistance and horticultural type, leading to the F₆ selection 72-136. Subsequent massed

progenies were extensively tested as 72-136M in the greenhouse for resistance and in the field for resistance and yield.

We found that 72-136M progenies continually produced a non-heading, spatulate-shaped leaf mutant similar or identical to the 456 mutant described by Pearson (3). This mutant appears in most lettuce cultivars occasionally and more frequently in others (2). We judged its appearance to be frequent in 72-136M and selected one line, 72-136-8, among several individual plant progenies, as being apparently free of the mutant. This line was released as 'Thompson.'

Description

'Thompson' has medium-dark green outer leaves, with the brightness characteristic of 'Calmar', one of its parents, and the Great Lakes type in general. The color extends reasonably well towards the core. The interior color is very light cream, nearly white. The heads are firm to hard at maturity and will normally pack 2 dozen per standard carton.

The head is well-covered and occasionally spiraled (a whorl of outer leaves obscures the top of the head). The butt is usually flat, but occasionally rounded. Leaves are broad at the base and the ribs are usually flat but occasionally raised. The core diameter is medium to large. Stem height is low to medium but tends to greater length in hot weather. Leaf margins are dentate and texture is crisp, similar to the Calmar-Great Lakes type. Seed color is white (Fig. 2).

Disease reactions

'Thompson' was the most big vein-resistant item in our breeding program, in greenhouse tests and in extensive field trials

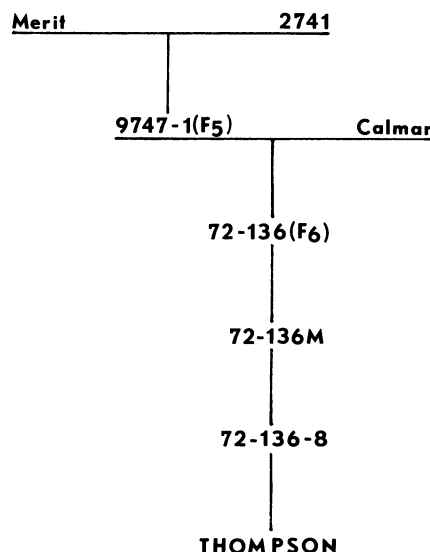


Fig. 1. Pedigree of lettuce cultivar 'Thompson'.



Fig. 2. 'Thompson' lettuce.

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(Table 1). Among the replicated trials (1976–1980), ‘Thompson’ showed a significantly lower incidence of big vein than the checks in all but 2 trials. Fewer harvest percentage differences, however, were significant. Big vein does not consistently delay head formation and reduce yield. This phenomenon occurs under low temperature conditions. Yield differences in warmer weather may be independent of the big vein effect (4).

‘Thompson’ is susceptible to downy mildew infection by populations of *Bremia lactucae* Regel with virulence factor V8 present (1; F.W. Zink, personal communication). Although moderately susceptible to tipburn, this disorder is unlikely to be a problem at the low temperatures during the period for which ‘Thompson’ is recommended. ‘Thompson’ is susceptible to lettuce mosaic and to sclerotinia. Other disease reactions have not been established.

The overall appearance of ‘Thompson’, immediately after storage for 8 days at 5°C and 3 days at room temperature, is comparable to ‘Salinas’. No specific problem with pink rib or russet spotting has been noted. Occasional heads may show traces of rib discoloration (W. J. Lipton, personal communication).

‘Thompson’ has produced reasonable yields under nearly all conditions under which it has been tested (Table 1). It may be up to 10 days earlier than comparable cultivars in cold weather when big vein is severe. Thus, it is best adapted for early spring culture on heavy soils that stay wet and are conducive to severe big vein (big vein-prone) (4, 6). ‘Thompson’ will produce moderately high yields when comparable cultivars are not harvestable or when harvest is delayed because of big vein. It is not recommended for light-textured, well-drained (big vein-suppressive) soils (6) or for later-maturing plantings, when the more desirable ‘Salinas’ type will produce higher yields.

Table 1. Big vein reaction and harvest percentages of ‘Thompson’ lettuce compared to standard commercial check cultivars, 1973–1980.

Year	Ranch	Lot no. ²	Thompson		Check		
			Big vein (%)	Harvest (%)	Cultivar	Big vein (%)	Harvest (%)
1973	Foster	123	0	66	Calmar	7	56
	Salmina	90	24	24	Calmar	41	58
	Freyer	78	50	63	Calmar	74	34
	6	9	3	80	Calmar	5	72
1974	6	16	9	77	Calmar	5	64
	Culver	229	13	79	Calmar	38	46
	Freyer	79	18	90	Calmar	75	72
	Westphal	50	21	90	Calmar	43	64
1975	Westphal	40	13	64	Calmar	24	67
1976	Salmina	93 ³	15A	64A	Calmar	89B	26B
	Salmina	95 ³	6A	54	Calmar	20B	65
1977	Westphal	51 ³	21A	59A	Calmar	71C	45B
	Salmina	95 ³	27A	86a	Calmar	71B	83a
	Westphal	55 ³	24A	72	Calmar	29A	86
1978	Home	1 ³	14A	62BC	Salinas	56B	58BC
					Calmar	54B	30D
	Westphal	55 ³	22A	72AB	Salinas	29A	78A
					Calmar	25A	72AB
1979	Westphal	54 ³	36AB	54BC	Salinas	71C	82A
					Calmar	91D	75AB
1980	Westphal	53 ³	21A	64AB	Salinas	76B	48B
					Calmar	67B	11C

²Ranches in the Salinas Valley are divided into smaller acreages known as lots.

³These data were extracted from replicated tests. Mean separation for each trait, by Duncan’s multiple range test, 5% level (lower case) or 1% level (upper case).

Outstanding characteristics

The most outstanding characteristic of ‘Thompson’ is its resistance to big vein, which is crucial when air temperature is low and the soil is wet. Under these conditions, it will yield early and well, compared to standard, more susceptible cultivars.

Availability

Seed of ‘Thompson’ is available in small amounts from the author. It will shortly be available in quantity from seedsmen.

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