

WOODY ORNAMENTAL AND SHELTER PLANTS
FOR THE
NORTH CENTRAL REGION
1954-1959

Five Year Report on Regional Plantings*
of
Fuonymus bungeana Maxim., Winterberry Euonymus

This large vigorous shrub or small tree was first cultivated in 1883 from North China and Manchuria. The well-developed 3-foot seedlings used in the present study were distributed by the Regional Plant Introduction Station, Ames, Iowa in 1954 and 1955. The 1954 plantings were made on 24 sites in eight states by cooperating state ornamental horticulturists. The following spring two additional plantings were made in Nebraska at Benkelman and at Hastings. In all, 80 plants were used. This report will serve to summarize the sub-committee's research experience with this shrub since 1954.

Description of Winterberry Euonymus

This vigorous shrub or small tree is somewhat irregular in branching habit. Young twigs are slender and green, turning gray with age. Winter buds are opposite, conical, and small.

Leaves: Simple, light green 2-4 inches, elliptical, long pointed, hanging downward from a slender petiole.

Flowers: Light yellow, inconspicuous, occurring in June, and borne in numerous but few flowered cymes.

Fruits: A four-celled capsule, green becoming pink, on opening with maturity in October the cells expose a light colored seed surrounded by a bright red aril. The opened capsules with exposed components hang for weeks into the winter and have decorative merit.

Outstanding Qualities

Regional experience to date with the Winterberry Euonymus suggests the following qualities:

1. Ease in transplanting as exemplified by near perfect survival report.
2. Massive root system characterized by a myriad of feeder roots which successfully tolerate a wide variety of soil conditions.
3. Hardiness to drought and cold--one of the most hardy Euonymus species under Regional test.
4. A rapid growing shrub.
5. Once in bearing, a yearly crop of fruit has potential decorative and emergency bird food values.

Location of Plantings

The Winterberry Euonymus was planted in eight states on 26 planting sites as indicated in Figure 1.

*A regional testing program organized as a work plan under the North Central Regional Plant Introduction state-federal cooperative project NC-7 Title: The Introduction, Multiplication, Preservation and Testing of New and Useful Plants of Potential Value for Agricultural and Industrial Uses. Sub-Title of work plan: Woody Ornamental and Shelter Plants for the North Central Region. This report covers plants grown in: Iowa, Kansas, Michigan, Minnesota, Nebraska, North Dakota, South Dakota and Wisconsin.

Survival

The regional trial plantings of the Winterberry Euonymus were generally successful. Twenty plantings were reported to have perfect survival over the five-year period. The location of these successful trials include Garden City, Hays, and Colby, Kansas; Lincoln, Hastings, North Platte, Alliance and Mitchell, Nebraska; Brookings and Highmore, South Dakota; Fargo, North Dakota; Twin Cities, Waseca, Morris and Crookston, Minnesota; Madison, Wisconsin; three plantings at Ames, Iowa, and East Lansing, Michigan. The number of plantings for the various five year survival percentage are given in Figure 2.

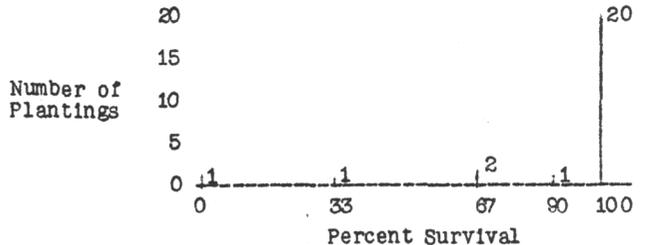


Figure 2. The number of Winterberry Euonymus plantings in relation to five year survival data.

Initial Losses: The Tribune, Kansas plantings failed during the first season. One plant at Duluth Minnesota died in the summer of 1954.

Delayed Losses: Two plants were reported dead at Grand Rapids, Minnesota. One plant was observed dead at both Benkelman, Nebraska and Rose Lake, Michigan. These losses were noted after the completion of five years on the test site and had occurred between the spring of 1956 and 1959.

Growth Evaluation

Average fifth year shoot growth (inches): The average growth of the various plantings averaged from six inches at Hays, Kansas to 36 inches at Crookston, Minnesota. The shoot growth data for 21 trial plantings of the Winterberry Euonymus are given in Table 1.

Table 1. Average shoot growth for Winterberry Euonymus five years on the planting site:

Location	Growth (in.)	Location	Growth (in.)
Hays, Kansas	6	Madison, Wis.	13
Highmore, S. Dak.	7	Mitchell, Nebr.	18
Benkelman, Nebr.	8	Waseca, Minn.	18
Fargo, N. Dak.	8	Ames, Iowa (E)	21
Morris, Minn.	8	N. Platte, Nebr.	25
Ames, Iowa (N)	8.7	Rose Lake, Mich.	25
Mitchell, Nebr.	10	Grand Rapids, Minn.	27*
Lincoln, Nebr.	10	East Lansing, Mich.	30
Brookings, S. Dak.	11	Ames, Iowa (W)	30
Twin Cities, Minn.	11	Crookston, Minn.	36
Hastings, Nebr.	12		

*Growth followed winter die back; plant, tender, unsatisfactory.

Average plant size after five years (height-spread - feet): Average height and spread data for each trial planting are shown in Figure 1.

Cultural Problems

No disease or insect damage to the trial plants was reported. Rodent damage has been light at Madison, Wisconsin, and severe at Highmore, South Dakota in the 1959-60 winter.

A slight amount of chlorosis was observed at the Crookston, Minnesota planting, although this did not prevent fruiting the fifth year under observation.

Planting Recommendations by State

The reports to date, after more than five years of observation at specified plantings in the regional trials, suggest that this large shrub could be successfully planted throughout the region with subsequent good plant growth expected in all but the following localities.

- Minnesota : Do not plant in the area served by the Duluth and Grand Rapids Experiment Stations. This plant may be used successfully in other areas of the State.
- North Dakota: All plantings except in the Fargo-Grand Forks locality should be limited to trials.
- South Dakota: Plantings west of the Missouri River should be on a trial basis.
- Nebraska : In the low rainfall areas of the western high plains counties further plantings should be limited to trials.
- Kansas : Do not plant in the low rainfall areas of extreme western Kansas. This shrub does well elsewhere in the state.

A map of the region with suggested planting area for the Winterberry Euonymus is shown in Figure 1.

Appropriate Uses

Because the Winterberry Euonymus is large and rapid growing without distinct outline or pleasing branching habit, this shrub is not generally suited for modern residential planting, either rural or urban.

The rugged dependability of this plant as revealed in these regional trials, its ease in transplanting as well as the ease with which it may be grown, all point to the suitability of this shrub for industrial or institutional landscape planting, as well as for wild life planting.

The cooperating ornamental specialists rated the Winterberry Euonymus as to possible uses in their locality. A summary of their recommendations follows (Table 2).

Table 2. Cooperator ratings of the Winterberry Euonymus with respect to various types of planting.

Degree of Usefulness	Types of Planting									
	Border	Screen	Specimen	Foundation	Highway	Shelterbelt	Windbreak	Ground Cover	Wild Life	Hedge
	Number of Evaluations									
Unsatisfactory	2	3	1	8	2	2	5	10	3	9
Trial Only	2	2	2	2	6	8	5	-	2	1
Recommended	11	10	11	1	2	1	1	-	7	-

These recommendations give weight to the merit of this plant in an aspect where there is sufficient room for development.

Further Testing of Winterberry Euonymus

As indicated under description, considerable variability was noted among plants. Poor plant shape, branching habit, and pale color of the leaves suggest the need for selection of plants with more pleasing appearance. Considerable variation in quantity and color of arils also points up the need for further selection for these characters.

Probably recognized varieties as var. pendula and var. semipersistens, part evergreen, should be tested in the Region. Certainly "old clones" as for example, small trees long known in western Nebraska should be propagated and tested; or their seedling progeny should be grown as a possible source of worthwhile individuals for further propagation and testing.

Sources of Winterberry Euonymus

This shrub has not been extensively planted in the North Central Region. Local sources of seed or cuttings may be obtained by writing to the state experiment station ornamental horticulturist.

References

The numbers listed below refer to pertinent references among those included under literature.

- 2, 3, 4, 25, 26, 35, 41.

