

Fact Sheet

BALLED AND BURLAPPED VS BARE-ROOT TREES AND SHRUBS

612-4

(Plant Materials - Forestry)



United States
Department of
Agriculture



Soil
Conservation
Service

PROBLEM:

It is generally accepted that balled and burlapped or potted stock has better survival and growth than bare-root stock. But how much better and do these benefits justify the additional cost in a windbreak planting?

ACTION:

A study to gather data to help answer these questions was conducted from 1983 to 1991 by the Rose Lake Plant Materials Center in cooperation with the Antrim Soil Conservation District and the Bellaire Field Office.

The planting was established in April 1983 using nine tree and ten shrub species. The location was in MLRA 94A, northern Michigan. The soil was a Kalkaska-East Lake complex sandy loam. Planting stock consisted of eight bare-root and eight balled and burlapped or potted plants for each species. These plants were typical of stock purchased from nurseries, and varied in size and age. Row spacing averaged eight feet for the tree species and six feet for shrubs. A clean-tilled planting site, eight-feet wide was prepared. Maintenance consisted of mechanical weed control the first two years, chemical weed control with simazine until 1988, and annual fertilizer applications.

RESULTS :

1. Establishment costs (purchase and planting) for balled and burlapped or potted stock were 4.5 times that of bare-root stock.
2. The balled and burlapped stock was larger than the bare-root material at the time of planting. This size advantage was maintained over the length of the study. On the average, the balled and burlapped trees were 25% taller and had 27% better survival than the bare-root trees. The balled and burlapped shrubs were 18% taller than the bare-root shrubs. There was very little difference in survival rates among the shrubs species.
3. Although the balled and burlapped stock put on more growth and had better survival, this trend varied from species to species and was more true of tree species than shrub species. Data for specific species is presented in Table 1 on the reverse of this sheet.

CONCLUSION:

There is no clear cut answer as to whether the improved performance of balled and burlapped stock justifies its increased cost. That decision rests with the individual making the planting, based on their goals and situation. This data is presented to assist that individual in making that decision.

TABLE 1

HEIGHT AND SURVIVAL BY SPECIES AND TREATMENT

Species	Balled and Burlapped			Bare Root		
	Height ^{1/}		Survival	Height ^{1/}		Survival
T R E E S	1983	1991	%	1983	1991	%
Eastern red cedar ^{2/}	39	43	25	15	51	63
Norway spruce	31	99	88	19	75	88
White spruce	28	92	100	13	36	38
Blue spruce	32	100	100	25	72	38
Austrian pine	20	119	100	16	81	50
Red pine	34	111	75	10	63	50
White pine	35	135	100	17	96	100
'Imperial' Carolina poplar	60	211	100	44	199	100
Northern white cedar	29	101	88	19	110	100
S H R U B S						
'Flame' amur maple	18	45	100	14	41	100
Siberian peashrub	35	93	100	31	78	100
'Indigo' silky dogwood	39	91	100	23	63	100
Cotoneaster	30	45	88	29	48	38
'Cheyenne' privet	31	85	100	25	62	100
Tatarian honeysuckle	43	96	100	30	90	100
'Roselow' Sargent crabapple	39	39	75	24	40	100
Ninebark	30	55	100	25	57	88
Lilac	28	44	79	24	29	58
American cranberrybush	20	29	62	20	22	75

^{1/} Height in inches

^{2/} Snowmobile damage on Eastern red cedar