

Sexual Propagation of *Taxus cuspidata* 'Capitata'

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INTRODUCTION

The typical form of *Taxus cuspidata* now has the cultivar name of 'Capitata'. The species is indigenous to Japan (four islands), Korea, and Manchuria. Many nurseries propagate this cultivar sexually for two basic reasons. First, unless upright terminal cutting wood is used the progeny will maintain the same growth habit as if they were attached to the mother plant. Secondly, a cutting-grown *T.cuspidata* 'Capitata' does not have the full basal branching that one observes in a seedling-grown plant. Therefore at Zelenka Nursery, Inc. all *T.cuspidata* 'Capitata' is sexually propagated.

The frustrations in sexual propagation of *T.cuspidata* 'Capitata' are sporadic germination, and poor quality in seedling height and caliper. We shall share with you seed source, stratification, culture, and transplanting practices.

SEED PROPAGATION

The manual, "Seeds of Woody Plants in the United States" (Schopmeyer, 1974) recommends stratifying 90 to 210 days at 60F and follow with 60 to 120 days at 36 to 41F. I have used this practice with more negative results than positive. Dirr and Heuser (1987) suggest 4-months warm stratification followed by 4-months cold, or 8-months to 1-year warm followed by 3 months of cold. Their first recommendation will not provide economic germination. The frustration is finding seeds germinating in a 3-0 seed bed. That seedling is worthless!

Our seed source is a seed brokerage company in Japan. We have the seed shipped to arrive prior to March 1 (mid-February). We stratify upon arrival, using equal parts of sand to seed, in an outside stratification box for 12 months. We think this is the key for uniformity in germination. We remove the seed after stratification and wash the sand away from the seed on screens. The seed is then sown in well-drained, ground beds, in 100-ft poly houses. These houses are covered with 55% white poly until early June at which time we remove the poly and cover the house with 55% Saran shade cloth. We sow 75 pounds of seed per 2000 sq ft of seed beds. Doors are closed to provide high temperatures and humidity during germination.

CULTURE

Regarding culture, we water by hand because this genus is extremely sensitive to over-watering. Our normal preventative fungicide program is employed, and insecticides are used when needed for grub control. After germination, 6 to 8 weeks after sowing, we apply liquid fertilizer (10-52-10) at the rate of 3 lb/100 gal. The last feeding is in October. The major weed problems we encounter are the mosses, and we have used Goal 2E at one-half label rate. It has done a satisfactory job. This herbicide can only be applied after the removal of the poly. This is important!

TRANSPLANTING PRACTICES

After three years in the seed beds, the plants are harvested and graded. At grading, any one-year seedlings and "J" rooted plants are culled. At our seed bed density we are producing 1500 to 2000 seedlings per pound of stratified seed. The graded seedlings are then transplanted in nine-row beds at our liner farms for three additional years. In August of the second transplant year (now 3-2), all beds are root pruned vertically and horizontally with a Fobro root pruner. Culture at the liner farms is similar to the seed beds with respect to the greenhouse pesticide program, however irrigation is via overhead sprinkler heads. Once again, it is mandatory that we utilize well drained transplant beds.

After three years in the transplant bed the plants (now 3-3), are harvested in the spring and planted into the field, at a 44-in. spacing between rows and 18 in. in the row. This yields 8000 plants per acre. Up to this point the plants have not been top pruned. After the second year in the field, the plants are hand sheared annually the first two weeks in August. After 4 years in the field, the plants are now 10 years old from seed. We start field harvesting 12/15 in. and a few 15/18 in. plants.

IN REVIEW

- Seed shipped direct from Japan.
- Seed stratified for 12 months in sand, outside.
- Seed sown, ground beds, in houses poly covered from November to May. Saran covered June to October. Held for 3 years (3-0).
- Seedlings transplanted for 3 years (3-3).
- Transplants to the field for 4 to 7 years (10 to 13 years from seed).
- No top pruning as a seedling or transplant. Field-grown plants pruned by hand annually during the first 2 weeks of August.

In reviewing the literature, Tony and I found over 15 references regarding this cultivar. The earliest found in our beloved Proceedings was 1954. After almost 40 years, we all are constantly seeking and sharing!

LITERATURE CITED

- Dirr, M.A. and C.W. Heuser Jr.** 1987. The reference manual of woody plant propagation: From seed to tissue culture. Varsity Press, Athens, Georgia.
- Schopmeyer, C.S.** (ed.) 1974. Seeds of woody plants in the United States. Agric. Handbook 450. U.S. Department of Agriculture, Washington, DC.