



## **TACF PLANTING TYPE DEFINITIONS**

### **Member Plantings**

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Seed Level Member Planting  
Site Test

### **Outreach Plantings**

Ceremonial  
Demonstration

### **Science Plantings**

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American Germplasm Conservation Orchard (GCO)  
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### **Research and Silviculture**

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## **Assessment Metrics and Valuation**

### **Member Plantings**

TACF member plantings are accessible to all TACF members, dependent on donation level. These plantings are generally conducted entirely by members on their private property and the only requirement to gain access to the planting material is TACF membership and a donation at the level required by the program. These are always an option when an individual is interested

in planting chestnuts, and are often a better fit than one of the more involved cooperator and partner planting types listed below.

### **Member Planting**

**Definition:** A Member Planting, is a planting of wild-type American chestnuts supplied through TACF's Annual Wild-Type American Chestnut Sale program (a member benefit). While instruction for site selection and planting is provided along with the chestnuts, it is left to the member to determine the best place to plant and to care for their trees. This planting type does not require a Germplasm Agreement.

**Size range required:** Minimal, 8' x 8' spacing is the recommended minimum.

**Number of trees planted:** 10 - 50.

**Cost of establishment:** \$50-\$200.

**Timeline required of planting:** Variable – up to the landowner.

**Where does the planting material come from?** The material is provided by TACF, typically as seed, or occasionally as bare root seedlings grown by a cooperating nursery. Shipment of American seeds and seedlings is conducted in March or early April.

### **Seed Level Member Planting**

**Definition:** TACF Seed Level Members donate at a higher membership level (\$300-\$1,000) and receive access to our most advanced, potentially blight-resistant chestnuts (B3F3s) as a 'thank you' for their level of support. While instruction for site selection and planting is provided along with the chestnuts, it is left to the member to determine the best place to plant and to care for their trees.

**Size range required:** Variable – 8' x 8' spacing is the recommended minimum.

**Number of trees planted:** 4 – 12 trees annually, depending on the level of sponsorship.

**Cost of establishment:** \$20 - \$50 annually.

**Timeline required of planting:** Variable – up to the landowner.

**Where does the planting material come from?** The material is provided as seed by TACF's Meadowview Research Farms. Shipment of Sponsor seeds is conducted in March.

### **Site Test**

**Definition:** A Site Test planting is recommended a year in advance for most plantings, as a way to test the site for suitability to grow chestnuts, as well as to test out the management strategies and capabilities of the partner responsible for the planting. These plantings are a great way to begin a relationship with a new partner or on a new site. As long as American chestnuts are used a Germplasm Agreement is not required for this type of planting.

Site tests are a primary way for new collaborators to showcase readiness for the next suite of plantings, "Outreach and Science Plantings"

**Size range required:** Minimal – 7' x 15' spacing is the standard recommendation.

**Number of trees planted:** 20-30, usually wild-type American chestnuts.

**Cost of establishment:** Minimal - no more than \$50-100, and often less.

**Timeline required of planting:** One year or growing season.

***Where does the planting material come from?*** Typically, American seed or seedlings for test plantings come from the state chapter or may be sourced from other chapters by RSCs or others on the science staff.

## **Outreach Plantings**

Outreach and education plantings may be coordinated for high-profile events utilizing high-quality seedlings, or for more local opportunities with chapter-grown seedlings, or even nuts. While these are typically small plantings, it is important that the Germplasm Agreement and membership requirements are met (as for any TACF planting), and if TACF staff are taking the lead the local chapter should be involved, or at least notified, in an effort to maintain good communication.

### **Ceremonial**

***Definition:*** A ceremonial planting is typically a small, high-profile planting aimed at boosting visibility for TACF and our programs. Ceremonial plantings could be anything from planting a tree at the state house, to planting a few trees at the entrance to a nature center.

***Size range required:*** Minimal – 20' x 20' spacing recommended.

***Number of trees planted:*** It is generally recommended to plant 3-5 trees for a ceremonial planting, to account for expected attrition over time.

***Cost of establishment:*** Minimal - \$50-\$100.

***Timeline required of planting:*** Due to their nature, ceremonial plantings are generally expected to remain cared for in perpetuity.

***Where does the planting material come from?*** Typically, TACF's most advanced, potentially blight-resistant trees are desired for these types of plantings. This means the material comes from Meadowview and is usually grown as seedlings for development use, by the RSCs, or by the state chapters, though seeds could be planted. If other material is desired, such as wild-type Americans, these may often be sourced through the RSCs or state chapters, depending on availability.

### **Demonstration**

***Definition:*** A demonstration planting is usually a moderately sized planting with some sort of educational goal. It may be to highlight the differences across breeding generations, chestnut species, perhaps even hardwood species, or to showcase a variety of planting techniques. The format is relatively flexible, as long as there is some tie-in to TACF's mission and goals.

***Size range required:*** Variable – ½ - 1 acre, though the space required varies with the design and goals.

***Number of trees planted:*** At least 20-30 trees, though they could be much larger.

***Cost of establishment:*** Establishment costs can vary widely, depending on the site prep, number of trees, management strategies utilized, and necessity of a deer fence. A rough estimate of establishment cost is \$100 - \$1,000.

**Timeline required of planting:** A demonstration planting is typically expected to remain for the long-term, though this depends somewhat on the purpose.

**Where does the planting material come from?** This depends quite a bit on the planting design. Breeding material would need to come from the Meadowview Research Farms or state chapters, while various chestnut species might be available from nursery suppliers.

## **Science Plantings**

### **Orchards**

Orchard plantings require coordination with TACF science staff, and/or the state chapter to determine need, as well as available material and local logistical support. These planting types are not offered to prospective hosts as anything more than a possibility before confirming that the given location is suitable for the need.

#### **American Germplasm Conservation Orchard**

**Definition:** An American germplasm conservation orchard (GCO) is comprised of American chestnut sources of interest. The native sources of the trees, as well as the layout and size of these orchards can vary widely, offering greater flexibility than other types of orchards. A Germplasm Agreement is not required for this type of planting.

**Size range required:** Typically ½-1 acre.

**Number of trees planted:** Design and number of trees is flexible. A common standard for GCOs is 10 different sources of trees, with 10 representatives of each, for a total of 100 trees.

**Cost of establishment:** Cost can vary widely, depending on the site prep, management strategies utilized, and necessity of a deer fence. A rough estimate of establishment cost is \$500 - \$10,000.

**Timeline required of planting:** 10-15 years, or as long as the host will continue to maintain the planting.

**Where does the planting material come from?** American nuts are typically collected by the state chapters, or other TACF members. They may be stored and distributed by the chapters, RSCs, or shipped to Meadowview for storage and distribution.

#### **Breeding Orchard**

**Definition:** A breeding orchard is typically comprised of progeny from select trees of TACF's breeding program. These orchards are established as the need arises at the Meadowview Research Farms and within the state chapter breeding programs.

**Size range required:** At least 1 acre, often more.

**Number of trees planted:** Typically 300-500, but somewhat flexible.

**Cost of establishment:** Cost can vary widely, depending on the site prep, management strategies utilized, and necessity of a deer fence. A rough estimate of establishment cost is \$1,000 - \$15,000.

**Timeline required of planting:** 10-15 years.

**Where does the planting material come from?** Planting material for breeding orchards comes from controlled backcross pollinations, conducted at Meadowview or by the state

chapters. For a state chapter breeding orchard, the nuts or seedlings would be provided by the relevant chapter.

### **Seed Orchard**

**Definition:** A seed orchard is comprised of the top 10% of trees selected from TACFs Recurrent Genomic Selection program. As of 2024, there is a need to establish a minimum of three (3) primary seed orchard location with additional satellite backups (at least 3) delineated by CADE diversity regions (north, central, and south, as per [Sandercock et al 2022](#)).

**Size range required:** Approximately 3-4 acres

**Number of trees planted:** Approximately 1000 trees

**Cost of establishment:** Cost can vary widely, depending on the site prep, management strategies utilized, and necessity of a deer fence. A rough estimate of establishment cost is \$12,000 - \$25,000.

**Timeline required of planting:** 30-45 years.

**Where does the planting material come from?** Planting material for seed orchards comes from controlled pollinations among a pool of trees from TACFs recurrent genomic selections. Intercrosses are made among these trees, selected via genomic models within the first year of growth in a greenhouse, and those scoring within the top 10% in that model are planted in seed orchards.

### **Progeny Test**

**Definition:** A progeny test orchard is comprised of B3F3 sources and used to test the quality of B3F2 breeding selections. Progeny testing of the B3F2 selections at Meadowview is underway, though it is still unclear the extent to which state chapters will need to take this on with material from their local breeding programs. A progeny test orchard may aim to observe performance long-term without intervention, or may be inoculated and rated to provide more timely results.

**Size range required:** At least 1 acre, often more.

**Number of trees planted:** Highly variable - 300 – 2000.

**Cost of establishment:** Cost can vary widely, depending on the site prep, management strategies utilized, and necessity of a deer fence. A rough estimate of establishment cost is \$1,000 - \$20,000.

**Timeline required of planting:** 7-30 years.

**Where does the planting material come from?** At this point, B3F3 material for progeny testing is only available from the Meadowview Research Farms, and sources of interest, as well as planting design, should be defined by or in collaboration with TACF's Director of Science.

### **Transgenic Planting**

**Definition:** Note: this planting type is not yet available. Transgenic plantings contain transgenic trees developed by partner labs. At this time, all transgenic plantings are conducted under permit by USDA-APHIS and are not available to the public.

## **Research**

Research plantings require coordination with TACF science staff to determine need and available material. These plantings are generally installed and maintained by research collaborators, with guidance and planting material provided by TACF. In some instances, it may be appropriate for TACF staff to remain more involved in these plantings, however generally we expect collaborators requesting these types of plantings to take on the maintenance, as well as data collection and analysis. That said, if and when appropriate, it is great to have TACF science staff listed as co-authors on any resulting papers, or at least acknowledged for collaborating.

### **Research (general)**

**Definition:** This planting type covers any kind of research planting not specifically addressed by one of the standard planting types TACF pursues, such as a silvicultural trial, a common garden experiment, a Phytophthora test planting, etc. As such, these plantings could address any of TACF's research goals. This type of planting is most often taken on by a collaborator with some input and guidance from TACF science staff.

**Size range required:** Highly variable and dependent on the experimental design.

**Number of trees planted:** Highly variable and dependent on the experimental design.

**Cost of establishment:** Highly variable and dependent on the experimental design.

**Timeline required of planting:** Highly variable and dependent on the experimental design.

**Where does the planting material come from?** This depends on the research proposed. Material could come from the Meadowview Research Farms, the Chapters, the RSC's, a commercial source, or a combination of several sources. TACF Staff will determine the best materials suited for a given research planting, depending upon material availability and research goals.

### **Reintroduction Trial**

**Definition:** Reintroduction Trials provide the opportunity to evaluate the long-term silvicultural aspects of potentially blight-resistant American chestnut trees in a real-world forest setting. These plantings are a preliminary forest planting of seed/seedlings from parent trees that exhibit some level of resistance, but which may not have been formally progeny tested. The design, size, expected timeline, and number of trees included in these tests are highly variable and will depend on the goals of the test being established.

**Size range required:** Highly variable - 1-50 acres.

**Number of trees planted:** Highly variable - \$300-\$30,000.

**Cost of establishment:** Variable, depending on the site prep, management strategies utilized, and necessity of a deer fence. A rough estimate of establishment cost is \$1,000 - \$100,000.

**Timeline required of planting:** 5-50 years.

**Where does the planting material come from?** Potentially blight-resistant material appropriate for these kinds of plantings is currently only available from the Meadowview

Research Farms. Distribution should continue to be controlled by TACF, and recipients will need to acknowledge the evaluative nature of the planting material.

### **Restoration Trial**

**Definition:** *Note: this planting type is not yet available.* After the performance of parent trees satisfactorily passes evaluation in both blight-canker evaluations AND progeny testing or genomic selection, seed from those trees may be placed into Restoration Trials. These trees will exhibit resistance significantly higher than that of American chestnut and will closely resemble American chestnut morphologically. Restoration Trials, like Reintroduction Trials, provide the opportunity to evaluate the long-term silvicultural aspects of potentially blight-resistant American chestnut trees in a real-world forest setting.

**Size range required:** TBD

**Number of trees planted:** TBD

**Cost of establishment:** TBD

**Timeline required of planting:** TBD

**Where does the planting material come from?** Potentially blight-resistant material appropriate for these kinds of plantings is NOT currently available but is expected to come primarily from the Meadowview Research Farms, at least at first. Distribution should continue to be controlled by TACF, and recipients will need to acknowledge the evaluative nature of the planting material.

### **Restoration Planting**

**Definition:** *Note: this planting type is not yet available.* A majority of trees in this class are expected to have reliably high levels of blight-resistance. Parent trees will be proven through all testing methods available. These trees will be the source of self-perpetuating, blight-resistant American chestnut populations.

**Size range required:** TBD

**Number of trees planted:** TBD

**Cost of establishment:** TBD

**Timeline required of planting:** TBD

**Where does the planting material come from?** A timeline for release of these materials cannot be estimated at this time. Control of release by TACF will no longer be necessary from the standpoint of ecological competence of the materials.

## **Proposed TACF Plantings: Assessment Metrics and Valuation**

There are several metrics The American Chestnut Foundation (TACF) uses to assess the feasibility of a proposed planting project. If and how a proposed project addresses these metrics helps determine whether we can commit to conducting a planting, and if so, the planting type that is most appropriate. A project does not need to address every metric. However, the decision as to whether TACF can provide planting material takes into account any metrics that a proposed project does address.

In addition to these metrics, there are several requirements of all TACF plantings:

1. must support TACF's mission and vision;
2. the Germplasm Agreement (GPA) and/or Landowner Agreement must be signed by the host, depending on materials to be planted (see below);
3. the host must be (or become) a TACF member; and
4. the site conditions should be evaluated for their suitability to grow chestnuts and the host must acknowledge any expected site limitations prior to planting.

### **Assessment Metrics**

Please address or consider each of the following metrics, as they apply to the proposed project.

**Viability:** Is the site appropriate for growing chestnuts? Are caretakers at the site willing and able to establish and properly maintain the planting? How many person-hours will be devoted to care of the site annually? Does it support and align with our values and mission? Does it meet criteria for TACF's geographic scope (no material east of Mississippi)?

**Visibility:** Is the site in a location where the trees will be good "advertising" for our work? How many people visit the site annually? Does it help us reach potential members/donors/funders? Will this planting be indicated by signage or brochures, or included in any programming? What is the distance from the nearest entrance? Is it easily accessible?

**Public Relations:** Are the partners willing to create and/or participate in PR events surrounding the planting of the trees? Will they create and distribute a press release? Do they have media contacts? Will they post to their calendar/website/social media platforms?

**Partnership:** Is there an established and/or long-term partnership with the organization/individuals?

**Economic:** Are the partners already, or willing to become, members of The American Chestnut Foundation? Are additional monies or donations being made in support of the project? How does any dedicated funding balance against other benefits of the project?



**Research:** What major research objective of the Foundation does this planting meet? Does the proposed planting fulfill a direct need for TACF or a TACF Chapter (seed orchard, progeny test, etc.)? Will the research be led by TACF staff or a collaborator? Does it move us forward as an organization?

**PLANTING TYPES AND SUGGESTED WEIGHTING OF METRICS**

TACF installs a wide variety of plantings, and how the above metrics are assessed and weighted depends a great deal on which type of planting is under consideration. Some metrics will be more important for some planting types than others. And in many cases, more than one planting type could be considered for a proposed site/partner, however keeping the assessment metrics in mind as the options are explored may help determine the best fit.

**1-3 Scale Valuation (1 = low importance, 3 = high)**

	<b>Viability</b>	<b>Visibility</b>	<b>Public Relations</b>	<b>Partnership</b>	<b>Economic</b>	<b>Research</b>
<b><u>Member Plantings</u></b>						
<i>Member</i>	N/A	N/A	N/A	N/A	3	N/A
<i>Seed Level Member</i>	N/A	N/A	N/A	N/A	3	N/A
<i>Site Test</i>	3	N/A	N/A	1	N/A	N/A
<b><u>Cooperator and Partner Plantings</u></b>						
<b><u>Outreach and Education</u></b>						
<i>Ceremonial</i>	2	3	3	1	1	N/A
<i>Demonstration</i>	2	3	3	1	1	N/A
<b><u>Orchards</u></b>						
<i>Breeding Orchard</i>	3	1	1	1	2	3
<i>Seed Orchard</i>	3	1	1	1	2	3
<i>American Germplasm</i>	3	1	1	1	1	2
<i>Progeny Test</i>	3	1	1	1	2	3
<i>Transgenic Planting</i>	Not yet available					
<b><u>Research</u></b>						
<i>Research (general)</i>	3	1	1	1	1	3
<i>Reintroduction Trial</i>	3	1	1	1	1	3
<i>Restoration Trial</i>	Not yet available					
<i>Restoration Planting</i>	Not yet available					

**DETERMINING APPROPRIATE DONATION LEVELS**

TACF does not sell trees. We make them available to our members and partners through various sponsorship programs (see PLANTING TYPES > Member Plantings, below), or as a ‘thank you’ for supporting our programs. In general, our most advanced, potentially blight-resistant trees from the Meadowview Research Farms (B3F3s) are where a donation is expected, however there are other situations where support of our work would be appropriate before committing to a project.

When determining a donation level that would be appropriate to support certain planting types there are a few valuations that are useful to keep in mind:

- \$75/chestnut is the estimated real value of TACF's most advanced trees, based on the many years of R&D that have gone into our programs to-date, as well as the cost to operate TACF during that time.
- \$25/chestnut is the estimated value of TACF's most advanced trees in relation to what it costs to operate TACF for a single year.
- \$2/chestnut is TACF's absolute minimum cost to produce any chestnut available for planting, regardless of breeding generation or species.

When determining a fair donation to support a given planting project, it is important to keep the planting assessment metrics in mind. If a planting addresses the high-priority metrics, the donation level is less important. However, the more metrics that are missing or suboptimal, the higher the expected donation. This requires staff to use their best judgement when making these determinations, or to bring a project up for discussion if there is uncertainty.