

PA Chestnut Breeding Program (aka: CMS Program)

Single County Program with Six Generations of Crossing
Two Asian Trees as the Sources of Resistance

Selected Generation	Total to Plant	Procedure	Cross	# Seed to Produce	Total to Plant
American (female) x Chinese (male)		<ul style="list-style-type: none"> • Hand pollinate 2 Americans with pollen from 2 Chinese. • Find 2 more Americans (A) 	A x C (a) A x C (b) A (c) A (d)	<ul style="list-style-type: none"> • 10 F1 (a) • 10 F1 (b) • 20 OP A (10 c & 10d) 	40 (1)
1) Male Sterile (MS) → F1xA	40	<ul style="list-style-type: none"> • Grow for 5 to 8 years (All AxCF1s to be MS) • Find 2 more Americans (A) 	Open pollinated (OP)	<ul style="list-style-type: none"> • 400 B1 • 20 OP A (10 e & 10 f) 	420 (2)
2) MS → B1xA	420	<ul style="list-style-type: none"> • Select MS and eliminate MF, (1/2 should be MS, other MF) • Inoculate & select for A • Find 2 more Americans (A) 	Open pollinated (OP)	<ul style="list-style-type: none"> • 400 B2 • 20 OP A (10 g & 10 h) 	420 (3)
3) MS → B2xA	420	<ul style="list-style-type: none"> • Select MS and eliminate MF, (1/2 should be MS, other MF) • Inoculate & select for A 	Open pollinated (OP)	<ul style="list-style-type: none"> • 400 B3 	400 (4)
4) Male Fertile (MF) → B3xB3	400	<ul style="list-style-type: none"> • Select MF and eliminate MS, (1/2 should be MS, other MF) • Inoculate & select for A 	Open pollinated (OP)	<ul style="list-style-type: none"> • 1600 B3F2 	1600 (5)
5) MF → B3F2 x B3F2	1600	<p style="text-align: center;">REGIONAL ORCHARD</p> <ul style="list-style-type: none"> • inoculate & select A 	Open pollinated (OP)	<p>As many as possible B3F3</p>	1000s (6)
6) MF → B3F3	1000s	FOR REFORESTATION			