



8 Tips for Quicker Macro-Infusion Uptake

Dose

- Apply 360 ml of Arbotect® 20-S for each 13 cm of DBH (28 ml/cm DBH) and dilute each 360 ml of Arbotect 20-S in 24 L of water.
- Do not use this treatment if trees are less than 25 cm DBH
- To avoid a phytotoxic response in trees between 25-50 cm DBH, the dose rate should be reduced by 1.2% per cm. This reduction has been reflected in the dosing chart.
- For trees with significant canopy loss, or trees sharing a canopy with neighboring trees, reduce the dose rate accordingly. For example, if 15% of the canopy is missing or shared, reduce the dose rate by 15%.
- For all non-*Ulmus americana* elm species, use a half rate of 180 ml per 13 cm DBH to minimize the possibility of a phytotoxic response.

Sharp Drill Bits

Use high helix drill bits, as they are sharpened to a razor edge down the length of the twist. This will cleanly slice the xylem tissue, yielding optimal uptake. Drill bits should be changed every five trees.

Clean Root Flare

To prevent dulling of the drill bit, and physical obstruction in the injection sites, clean off root flare carefully with a bristle brush, even if above ground.

Proper Tee Depth

Injection sites should be approximately 2 cm in depth. Tees should be inserted into the site by hand, then given a light tap to seal.

Drought Stress

Water the tree a day before the infusion if drought stress is a problem. Drought stress may cause trees to transpire less. Maintain adequate soil moisture throughout the growing season.

Clogged Tees

To prevent clogged tees, check each tee for mud or sawdust before insertion.

Clean Pump Filter

Before each use, check and/or clean the pump filter. A clogged filter will affect uptake times.

Right Water

Water can easily be tested prior to mixing: add a few drops of Arbotect 20-S to a cup of water. Hard or alkaline water (high pH) will cause Arbotect 20-S to fall out of solution. The solution will turn white, with a floating precipitate, and is easily distinguishable from foaming water with air bubbles that originate from the re-circulating hose (which is not an issue). With hard water, a deionizer can be used and can be rented from a water treatment company as a portable unit. For alkaline water, muriatic acid can be added at a rate of 1.3 ml per litre of solution. Stir until solution turns clear.

American Elms (*Ulmus americana*)

DBH (cm)	Arbotect (ml)	Water (L)	DBH (cm)	Arbotect (ml)	Water (L)	DBH (cm)	Arbotect (ml)	Water (L)
Reduced dose of 1.2% per cm* (25-50 cm)			68	1883	126	112	3102	207
25	485	32	69	1911	127	113	3129	209
26	504	34	70	1938	129	114	3157	210
27	546	36	71	1966	131	115	3185	212
28	566	38	72	1994	133	116	3212	214
29	586	39	73	2022	135	117	3240	216
30	631	42	74	2049	137	118	3268	218
31	652	43	75	2077	138	119	3295	220
32	700	47	76	2105	140	120	3323	222
33	722	48	77	2132	142	121	3351	223
34	744	50	78	2160	144	122	3378	225
35	795	53	79	2188	146	123	3406	227
36	817	54	80	2215	148	124	3434	229
37	871	58	81	2243	150	125	3462	231
38	894	60	82	2271	151	126	3489	233
39	918	61	83	2298	153	127	3517	234
40	975	65	84	2326	155	128	3545	236
41	999	67	85	2354	157	129	3572	238
42	1058	71	86	2382	159	130	3600	240
43	1084	72	87	2409	161	131	3628	242
44	1109	74	88	2437	162	132	3655	244
45	1171	78	89	2465	164	133	3683	246
46	1197	80	90	2492	166	134	3711	247
47	1262	84	91	2520	168	135	3738	249
48	1289	86	92	2548	170	136	3766	251
49	1316	88	93	2575	172	137	3794	253
50	1385	92	94	2603	174	138	3822	255
51	1412	94	95	2631	175	139	3849	257
52	1440	96	96	2658	177	140	3877	258
53	1468	98	97	2686	179	141	3905	260
54	1495	100	98	2714	181	142	3932	262
55	1523	102	99	2742	183	143	3960	264
56	1551	103	100	2769	185	144	3988	266
57	1578	105	101	2797	186	145	4015	268
58	1606	107	102	2825	188	146	4043	270
59	1634	109	103	2852	190	147	4071	271
60	1662	111	104	2880	192	148	4098	273
61	1689	113	105	2908	194	149	4126	275
62	1717	114	106	2935	196	150	4154	277
63	1745	116	107	2963	198			
64	1772	118	108	2991	199			
65	1800	120	109	3018	201			
66	1828	122	110	3046	203			
67	1855	124	111	3074	205			

*When reducing Arbotect dose for trees less than 50 cm, the reduction is compounded per cm of DBH.

Example: The label rate for a 45 cm elm with a full crown should be reduced by 6% (5 cm x 1.2%)