started from seed. Investigations in my greenhouse reveal that unlike Drosera, leaf cuttings are not adventitious. If a grower wishes to have plants on hand at all times, new seeds should be sown from the previous year's crop.

MONITORING SALT LEVELS IN BOG POTTING SOILS

by Warren Stoutamire

Bog orchids and carnivorous plants have been cultivated in the University of Akron greenhouses for 6 years with varying success. Soils suitable for most greenhouse plants are quickly lethal to the majority of bog plants and although there may be several reasons for this they all have one thing in common--a relatively high release rate of soluble salts. Soils in which pitcherplants and sundews flourish are low in such soluble compounds. Much of the bog plant material cultivated here is grown in mixtures of Sphagnum, brown peat, perlite, white silica sand and very small quantities of topsoil, producing constantly low salt levels when properly watered.

A simple method of determining the quantity of dissolved salts in soils involves collecting the water draining from the pot after watering and determining its conductance in terms of micromhos (μMho) by means of a conductance meter. Conductance (Mho) is the reciprocal of resistance (Ohm) and μMho = 1/Ohm x 10^6. Such instruments vary in price, but tend to be expensive. Anyone with a knowledge of electronics should be able to put together a usable instrument for less than those commercially available. All utilize a simple electrode assembly which is placed in the solution to be tested, conductance being read through a bridge circuit. Because conductance readings vary with temperature they must be made at a standard temperature. Conductance determinations will give no information as to the kinds of salts present in solution but measure total ionized material. Low soil water conductance is associated with good carnivorous plant growth here and conductance measurements have been very useful both in spotting developing soil problems and in making up new potting mixes.

Examples of conductance determinations in different water sources (20°C):

		μMho	PPM
1.	Double distilled water	less than 2	1
2.	Distilled water	more than 3	2
3.	Mixtures in which Sarracenia, Drosera and Sphagnum mosses grow	20-40	10-20
4.	Fresh commercial greenhouse potting soil	230	115
5.	Akron tap water (120ppm total hardness)	250	125
6.	Soil in non-bog greenhouse ornamentals, showing toxic salt levels	1000-1500	500-714

7. Livermore 250 ppm total salts 110 hardness.