space for the equipment in the roof-fogging, heating, screens, and lights.

2. A slightly thicker mobile screen material of LS16 to give a 60 per cent shade. This is most important to keep the house cool in very hot weather.

3. The possibility of roll-up side screens, rather than one which moves with the roof, to give more flexibility.

4. The inclusion of a secondary cooling system in addition to the fogging system for use when temperatures reach 30°C. This would take the form of very high pressure spray lines in the region of 30 atmospheres. This was considered for our present house but was dropped because of cost.

5. Control of the water and air temperature used in the fogging system is non-existent. A means of cooling these in summer would be a great advantage in keeping the temperature down.

CONCLUSIONS

Allow plenty of time for building. Ensure that the site is levelled well in advance of the starting date, to give time for the land to settle and give a reasonable working surface from which to build. Failure to do this may, in a wet season, result in a mud bath. The removal of between 150 to 200 tons of mud from inside a glasshouse, with shovels and dumper truck, for two weeks in December, is something I am not likely to forget.

ULTRASONIC FOGGING SYSTEM—SONICORE NOZZLES

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To obtain best results from a fogging system each water droplet must be of the correct size. The smaller the droplet the larger the number present from a given volume of water. It is the greater number of very small water droplets that gives optimum coverage and distribution of the fog.

Fog works because the small droplets, with very little mass, stay in suspension drifting with any air movement until they evaporate. Large water droplets must not be formed as these will fall in the immediate area of the nozzle causing overwetting.

Sonicore atomising nozzles can produce much smaller droplets than conventional nozzles. The nozzles are air-driven "acoustic

oscillators" which break up water into tiny droplets by passing it through a field of high frequency sound waves. The air expands through a convergent/divergent section (rather like a whistle) into a resonator cap where it is reflected back to complement and amplify the primary shock wave. The result is an intense field of sonic energy, a shock wave, focussed between the nozzle body and the resonator cap.

The energy within the shock wave, generated by high pressure air, shears into droplets any water pumped into it. Air from the nozzle that happens to by-pass the resonator carries the atomised droplets downstream in a soft plume-shaped spray. The droplets have a low mass and low forward velocity with low impingement characteristics. Fine atomisation ensures uniform distribution of the moisture with minimum overspray and waste.

Large liquid ports in the nozzle prevent clogging or malfunction. Low water pressures considerably reduce wear, maintenance, and performance deterioration with continuous use. One major advantage of the nozzle is the ability to provide a consistent quality of atomisation over a wide flow range. Turn down ratios of 50 to 1 are possible.

Sonicore nozzles are available with flow ranges from 0.4 to 4,550 litres per hour but there are only two sizes used in horticulture—the 035H with a flow range of 0.4 to 8 litres per hour and the size 052H with a flow range of 1.0 to 20 litres per hour. With the high humidities required for plant propagation you will require one nozzle per 150 m^3 of room volume.

Sonicore nozzles can be operated in gangs from large air and water manifolds, but for fine control and an even moisture distribution it is much better if each nozzle has its own air and water regulators. The most popular arrangement is the type 5301B atomiser station where on/off valves and pressure regulators with pressure gauges are mounted with the nozzle in a neat package. The atomiser can be remotely switched from either hand, timer, or humidistat controller.

Alternatively, complete systems, with all the valves, gauges, and switches mounted in a master control panel with air and water pipes to each nozzle, are available.

The Sonicore nozzle uses a resonator cup supported on two wire legs to reflect the air stream shockwave escaping from the main body of the nozzle. If the resonator cup is bent out of alignment or broken off it can easily be replaced. In an emergency the cup can be re-aligned by passing the nearest sized drill through the nozzle and lining the cup up with the drill.