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EXPERIENCE WITH SHADE HOUSE CONSTRUCTION USING NEW KNITTED TYPE SHADE CLOTH

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There are several different brands and qualities of shade cloth on the Australian market and I have used most of them over the years. It was in late 1978 that the newest type of knitted shade cloth came to my attention and I was quite impressed with its characteristics. These were mainly:

1. The ability of the cloth to be stretched tightly when being fixed to a structure, due to the fact that the fibres are claimed to not be affected by expansion or shrinkage, to any major degree, by weather changes.

- 2 The cloth which I used was black and was claimed to have a 2% ultra-violet inhibitor built-in (carbon black) which had shown in accelerated tests to lengthen the life span of the cloth by as much as 20%

3. Because of the knitted nature of the cloth it can be cut at random in any direction without the cloth laddering or coming unravelled along the edge

- 4 The cloth is available in either 6 or 12 foot widths, which gives added advantages on large construction.

5. The knitted pattern allows the effective use of fixing clips of various types without risk of pulling or fraying

In our first application, a retail display shadehouse, the new cloth was used on both the walls and roof of a wooden structure approximately 75' long by 30' wide (23 m × 9 m). One third of the roof was covered with 50%, another third with 70%, of the knitted shade cloth, and the remainder with 30% woven cloth. The reason for this was to give varying degrees of shade for the diverse range of plants on display

Knitted shade cloth (50%) was also used around the walls of the structure and, in all areas, was stretched as tight as possible before fixing down with timber battens on the roof and slotted hoop iron around the walls. Where necessary, the knitted cloth was cut with a trimming knife around doorways

and along edges of framework, and the material was not folded or reinforced in any way before being fixed by the batten or hoop iron. The woven 30% cloth was given the normal allowance for 5% shrinkage as suggested by the manufacturer, cut edges being avoided wherever possible, and it was fixed down with timber battens. The area in which our nursery is situated is extremely windy and, therefore, the shade cloth has been subjected to unusually rigorous conditions. This resulted in fatigue and tearing of the woven shade cloth in several places, whereas the knitted cloth has not torn or frayed at any point over a period of 2½ years. I do believe that the combination of the excessive wind and the loose application of the woven shade cloth was responsible for the premature fatigue of the material; however, on the other hand, the knitted cloth was not able to move to any degree in strong winds due to the tension in the fixing. The roof rafters are 3' (0.9 m) apart for both materials and are fixed with continuous battens. The unsupported area of panel on the walls is 11'6" (3.5 m) × 5' (1.52 m), which is completely exposed to the full force of the wind. The knitted cloth has shown no sign of stretch or deterioration under these conditions

The growth of a wide range of plants under this shade-cloth has been closely observed and has not shown any appreciable difference in performance under woven shade cloth

In early January, 1981, a much larger shadehouse of 190' (58 m) × 110' (33.5 m) was constructed with pipe frame, using 50% knitted shade cloth on both roof and walls. To assist with tensioning of the shade cloth, the outer perimeter of the roof structure was braced with a continuous 15" open web joist welded into the frame horizontally

The roof was constructed of 1" I.D. structural steel pipe and the inner member of ¾" I.D. pipe, with ⅜" mild steel rod for web bracing

This type of construction allows tension to be applied to the cloth by cable to a tractor or four-wheel-drive vehicle. The edges of the cloth were attached to the frame at 12" centres with a new type of plastic clip having similar design to a nut and bolt with a large mushroom head, and a serrated locking strap for holding down to the pipe.

Internal edges of the shade cloth sheets were joined with flat butterfly plastic clips at 12" intervals after tensioning.

The construction has proved very successful so far in the short time since it was finished, as it has withstood some very extreme storms and high winds without any sign of damage

There seems to be considerable controversy among the sales staff marketing the various types of cloth, with claims

and criticisms as to the quality and expected performance of the knitted shade cloth. There have been claims that the method of knitting creates sharp bends and tension on the yarn which will lead to early fatigue of the cloth and consequent breakdown of the fibre thread. However, my experience to date, although possibly a little premature, does not give me any indication of this claim being true. The manufacturer claims that the product is made from high density polyethylene which, after ageing, exhibits more resiliency and less tendency towards brittleness of the fibre threads than does polypropylene from which some other shade cloths are made.

MASS PRODUCTION OF EUCALYPTUS SEEDLINGS BY DIRECT SOWING METHOD

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INTRODUCTION

The tremendous growth rate of the city of Canberra during the sixties and early seventies brought an increased demand for inexpensive eucalyptus seedlings to be used in large landscaping and forward planting projects.

The time-honoured method in which seeds were sown in trays and the seedlings pricked off into another container tied up considerable labour and took six to nine months before the expensive seedlings were ready for planting. This prompted us to perfect a method of direct sowing into inexpensive throw-away polythene tubes packed into reusable wire baskets. Twenty-five tubes fit into a basket of 30 cm × 30 cm

Handling is reduced to a minimum by direct sowing into the tubes containing the growing medium. By using a balanced soil and nutrient mix we are able to produce 47 species of eucalyptus, (Appendix A) grown to a saleable size in about three months. By using heated glasshouses for the five cold months we can produce four crops each year.

Container. The throw-away container is a thin, ultra-high-impact black polythene tube 200 × 50 × 50 mm with eight 25 mm slits 20 mm from the base of the empty tube. The material is 50 microns thick. Each tube costs approximately one cent and contains approximately 547 cm³ of soil with an average weight of 705 g. when filled with moist soil.

Growing Medium. The medium is a modified U.C. (University of California) type mixture of 30 to 40% Australian