

## H.D.C. FINAL REPORT

### 1. Coversheet:

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Project No. : PC 19f

Project Title : 'Chrysanthemum : Cultivar selection and production techniques for natural season bloom and spray production. Part II.

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### 3. 'Practical Section for Growers'

Objective:- To determine the relevance of the 'Blue Print' for American Beauty PC19c to the production of other strains of American Beauty.

Key Results:- The Blue Print is of relevance to four of the five strains trialed.

- Early White
- White Select
- Early Yellow
- Yellow D

However there are minor adjustments that may be of assistance.

- Blackout treatment is not required for the Yellow cultivars.
- Planting in Week 31 gives a better bud initiation in the White Select strain.
- Early White does not perform particularly well in the North West and White Select is the better strain to use.
- The Golden strain of American Beauty can be grown without blackout but must have a higher temperature regime.

### 4. 'Science Section'

#### Introduction

Earlier trials of the chrysanthemum cultivar American Beauty have concentrated on the use of the White Select Strain and to a lesser extent on the Early Yellow strain.

A Blue Print for production for the Christmas market has been established (available from the HDC PC19c) and this 'variety trial' seeks to determine the relevance of this Blueprint to other commercially available American Beauty cultivars.

#### Materials and Methods

Unrooted cuttings of all available cultivars; Early White, White Select, Early Yellow, Yellow D and Golden were purchased from Frank Roe, Somerset. These were propagated in blocks and planted three weeks after sticking.

The crop was grown according to the 'Blue Print' i.e.

- Soil sterilised and fertilised as for a Natural Season Chrysanthemum crop to be grown with liquid feed (ADAS rec.)
- Planting 7" x 7"
- Pinch after 10 days
- Rub out to leave two breaks only
- Temperature 16° c minimum night, vent 18°c. Planting to buds visible.  
10°c night, 12°c Day Vent 14°c.  
Buds visible to flowering.
- Blackout 7p.m. - 8a.m.
- Feeding : start to buds visible 200ppm N 200ppm K  
Buds visible to flower colour 100ppm N 200ppm K

Plants were planted in Week 30 and 31 and grown with and without blackout treatment (7th - 21st September).

The plants were grown in two houses and each treatment plot of 100 plants was planted once in each house i.e. 2 replicates per treatment.

The crop was irrigated in accordance with standard commercial practice and Pest and Disease control carried out in House 1 by Chemical sprays and in House 2 using a biological control programme.

### **Results**

Data was collected relating to flowering date, flower size, neck quality and total yield.

With the exception of the Golden strain the treatments applied have had very little effect on the time to 50% flowering however the use of blackout has a considerable effect on the % crop harvested from the White strains in time for the Xmas market; Table 1.

Again with the exception of the Golden strain total yield, Table 2 and 3, is not affected by the treatments applied however the quality of Neck, Table 4 is significantly reduced in the White strains when blackout treatment is not used.

**TABLE 1**

**The effect of Cultivar and Production Treatment on flowering date.**

			Date 50% Harvest	% Sold by Xmas	Date Cleared
	Plant week	Blackout			
Early White	30	+	17/12	78	5/1/95
		-	20/12	53	5/1
	31	+	17/12	80	5/1
		-	20/12	50	5/1
White Select	30	+	17/12	76	5/1
		-	20/12	73	5/1
	31	+	16/12	75	5/1
		-	20/12	50	5/1
Early Yellow	30	+	18/12	62	5/1
		-	17/12	79	5/1
	31	+	18/12	85	5/1
		-	20/12	80	5/1
Yellow D	30	+	17/12	90	5/1
		-	17/12	87	5/1
	31	+	20/12	85	5/1
		-	17/12	76	5/1
Golden	30	+	3/1	10	20/1
		-	3/1	<5	20/1
	31	+	3/1	15	20/1
		-	3/1	5	20/1

TABLE 2

The effect of Planting Date and the use of blackout  
on Yield and Flower Grade (100 plants)

Cultivar	Plant week	Blackout	Stems Harvested	% 24 Grade
Early White	30	+	172	56
		-	190	55
	31	+	173	47
		-	170	42
White Select	30	+	186	45
		-	154	52
	31	+	187	44
		-	193	36
Early Yellow	30	+	171	42
		-	187	44
	31	+	191	45
		-	189	49
Yellow D	30	+	173	55
		-	180	60
	31	+	182	44
		-	173	52
Golden	30	+	141	42
		-	133	42
	31	+	140	36
		-	127	31

**Table 3**                      **Yield Data Summary (100 Plants)**

	<b>Total Stems Harvested</b>	<b>% Stems 24 Grade</b>
Early White	181	43
White Select	176	50
Early Yellow	184	46
Yellow D	177	53
Golden	135	38

**Table 4**

**The Effect of Planting Date and Blackout Treatment on Neck type/quality.**

	Plant Week	Blackout	% Thin Necks (Long day leaf number buds)
Early White	30	+	50
		-	80
	31	+	50
		-	65
White Select	30	+	50
		-	65
	31	+	25
		-	50
Early Yellow	30	+	20
		-	25
	31	+	5
		-	10
Yellow D	30	+	30
		-	35
	31	+	5
		-	10
Golden	30	+	50
		-	50
	31	+	40
		-	50



## **Conclusions**

The 'Blue Print' Project PC19c appears to be satisfactory for all strains of American Beauty except Golden.

Plants grown elsewhere on the nursery in the same season would indicate that for the Golden Strain blackout is unnecessary (ref. Table 1 and 4) but the temperature after bud initiation is critical and should be higher; min. Night 12, Day 14°C, Vent 18°C.

Blackout treatment appears to be unnecessary for the Early Yellow and Yellow D strains but will enhance the quality and bring forward the flowering date of the White Select strain.

Early White does not appear to be the best choice of White strain for production in the North West due to the problems encountered with neck quality which were influenced but not cured by the treatments applied.

Growers using blackout treatment should note that plant establishment is of paramount importance. Breaks at the start of the treatment should be 2-3" long to ensure that the flower stem produced is of adequate length.

It was also noted although not the purpose of the trial that the use of biological control improved the foliage quality and plant vigour considerably. Leaves were also much softer and appear to have an improved shelf life after harvest.

At this stage however the Biological Control programme used requires modification and the risk of TSWV transmission in the AB Cultivars remains significant.