

1. Title: Maturity and Yield Characteristics of Cauliflower
2. Leader and Department: J. R. Stang, Horticulture
3. Status: [] Terminating
 [X] Continuing
4. Funding by Commission for this reporting period: \$2000.00

Funds used to pay for land preparation and services provided by vegetable research farm staff, labor for weed control and harvest, statistical services.

5. Objectives:

- a. To describe the relationship between maturity characteristics of cauliflower and the timing of curd initiation, plant size at curd initiation, curd growth rate and the duration of curd growth.
- b. To determine the relative contribution of gene-type and environment of the variability in the yield and maturity of cauliflower.
- c. To prepare a comprehensive review of the research literature on factors affecting the yield and maturity of cauliflower.

6. Progress:

'Snowball 123', 'Snowball Y', and various hybrids including 'Glacier', 'Candid Charms', 'Plana', 'Spring Snow' and 'Snow Crown' were direct seeded on 29 May, 16 June, and 30 June. At about 1-week intervals beginning 1 month after seeding and ending about 2 weeks after the completion of curd initiation, plants were collected from each treatment and the number of leaves unfolded per plant, the number of leaf initials present on the plant but not yet unfolded, stem diameter, apex condition (vegetative or curd) and apex or curd diameter was determined. The remaining plants were harvested when they reached commercial maturity (curds exposed to sun). At this time, curd dimensions and weight was measured, and the total leaf number was determined.

Statistical analysis of data is continuing, and the method currently being used to estimate time and spread in curd initiation may need to be refined. However, results so far indicate that:

- a. Average curd weight at harvest (Table 1) and days from sowing to 50% maturity (Table 2) increased with later planting dates. For 'Snowball 123' and 'Snowball Y' this increase in days to maturity was due not to a delay in the time of curd initiation but rather to an increase in the time between initiation and curd maturity (Table 6).
- b. 'Spring Snow', 'Candid Charms', and 'Glacier' (all hybrids) reached 50% maturity a week to two weeks earlier than 'Snowball Y' and 'Snowball 123' (Table 2) but initiated curds at about the same time as these two cultivars (Table 4). Plana (also a

hybrid) initiated curds after the 'Snowball' lines but matured earlier. The earlier maturation of the hybrids was due to fewer days between initiation and maturity (Table 6).

- c. The spread in maturity was generally small; usually a week or less elapsed between 10% and 90% maturation (Table 5). The most noteworthy exception was the second planting of 'Snowball 123' and 'Snowball Y' for which the spreads were estimated to be 12 days. For these two cultivars the spread in curd maturity seemed to be directly related to the spread in curd initiation (compare Tables 3 and 5).
- d. Although there was a tendency for the spread in maturity of the hybrids ('Snow Crown', 'Spring Snow', 'Glacier', and 'Candid Charms') to be less than that of the open-pollinated 'Snowball' types in the first two plantings, this did not appear to be true in the third planting.

7. Summary:

One significant result of this research has been the development of methods and a conceptual framework for conducting and interpreting any future research on the subject of cauliflower yield and maturity. Another important result has been the improved understanding of the causes of the variability in maturity.

In addition, the research has suggested ways of making early predictions of the timing and spread in curd maturity. It may be possible to make such predictions based on determinations of the timing and spread of curd initiation. Unfortunately, pinpointing the time of curd initiation is tedious. Perhaps more practical approaches will present themselves when the data is analyzed further to see what factors affect the length of the interval between curd initiation and maturity.

8. Signatures:

Project Leader

Department He

Redacted for Privacy

Redacted for Privacy

Table 1. Estimated time of 50% curd initiation (days from sowing).

	----- 29 May	Planting 16 June	----- 30 June
Snowball 123	688	796	1046
Snowball Y	651	847	955
Spring Snow	501	-	607
Snow Crown	384	-	-
Candid Charms	-	524	721
Glacier	-	689	805
Plana	-	-	954

Table 2. Time of 50% maturity (days from sowing).

	----- 29 May	Planting 16 June	----- 30 June
Snowball 123	89	92	97
Snowball Y	89	95	99
Spring Snow	82	-	89
Snow Crown	73	-	-
Candid Charms	-	81	87
Glacier	-	82	87
Plana	-	-	93

Table 3. Spread of maturity (days between 10% and 90% maturity).

	----- 29 May	Planting 16 June	----- 30 June
Snowball 123	5	16	8
Snowball Y	6	14	9
Spring Snow	3	-	7
Snow Crown	2	-	-
Candid Charms	-	8	11
Glacier	-	8	7
Plana	-	-	7

Table 4. Estimated time of 50% curd initiation (days from sowing).

	----- 29 May	Planting 16 June	----- 30 June
Snowball 123	43	43	44
Snowball Y	44	44	45
Spring Snow	41	-	45
Snow Crown	38	-	-
Candid Charms	-	43	45
Glacier	-	43	45
Plana	-	-	48

Table 5. Estimated spread of curd initiation (days between 10% and 90% maturation).

	----- 29 May	Planting 16 June	----- 30 June
Snowball 123	6	12	7
Snowball Y	7	12	9
Spring Snow	4	-	9
Snow Crown	4	-	-
Candid Charms	-	11	10
Glacier	-	10	8
Plana	-	-	10

Table 6. Intervals between 50% initiation and 50% maturity (days).

	----- 29 May	Planting 16 June	----- 30 June
Snowball 123	46	49	53
Snowball Y	45	51	54
Spring Snow	41	-	44
Snow Crown	35	-	-
Candid Charms	-	38	42
Glacier	-	39	42
Plana	-	-	45