

Preparation of Cotton for the Market^{*}

by

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Synopsis: The various stages involved in the preparation of cotton to market in Coimbatore district and the proportion of lint, seed and other products obtained at each stage are explained.

Introduction: Cotton is grown for its lint. The seed forms a by-product and is used for feeding cattle, extraction of oil etc., after reserving a portion for sowing.

The cotton crop yields *kapas* i.e., seed cotton which is gathered, stored and marketed. In normal trade channels, *kapas* is purchased from growers and processed in ginning factories. The lint obtained is consumed by the textile industry, while the seed is sold for sowing or for feeding cattle.

The object of the paper is to explain the various stages and the products obtained at each stage in the processing of *kapas* on a commercial scale, with suggestions for improving the quality and out put.

Methods and stages in processing of kapas: MCU.1 seed-farm *kapas* from Tirupur area is being procured every year by the Madras Agricultural Department, processed and the lint supplied to the Madras Jail Department. Similarly, K. 5 *kapas* from the seed-farm crop in Palladam and Udumalpet taluks of Coimbatore District is being procured, cleaned, ginned and lint supplied to the Madras Department of *Khadi* for supply to spinners. The good seeds obtained are procured and distributed by the Agricultural Department for sowing. The data on the quantities of lint, seed and by-products obtained in the processing of *kapas* procured were taken for five consecutive seasons. The details are furnished in Appendix I for MCU.1 and in Appendix II for K.5 cotton.

Preparation of cotton for marketing commences from the harvest in the field. The *kapas* as obtained from the field usually contain hard locks and stains, known otherwise as yellow pickings and foreign matter like broken bits of capsules, leaf-bits, small twigs and dirt etc. The hard locks and stains and also the foreign matter to the extent possible are hand-picked by labourers, to improve the quality of lint and seed. The proportion of yellow pickings constitutes, on an average, 5.40% in MCU. 1 and 2.84% in K.5.

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The good *kapas*, thus realised is ginned in double roller gins. Waste lint, good lint and seed, are the products obtained. In the process of ginning, a portion of lint gets stuck up on the rollers and joints of the gin. This lint, which is usually oily and soiled, is gathered separately. Of the total *kapas* procured, the mean proportion of roller lint, oily lint or waste lint, as it is otherwise called, is 0.07% in MCU.1 and 0.09% in K.5; the mean out-turn of good lint is 33.59% in MCU.1 and 29.19% in K.5 and seed alone constitutes 58.65% in MCU.1 and 67.31% in K.5, on an average.

There is a negative difference in weight, between the weight of *kapas* procured and the sum total of weights of the end products obtained by ginning. This loss, known as "invisible loss" or "Wastage in processing" also varies. MCU.1 cotton suffers a mean loss of 2.29% while it is low in K.5 with a mean of 0.57%.

The seeds obtained by ginning contain good seeds, broken seeds, fuzzy seeds, muddy seeds and dirt. These are separated by sieving. The fuzzy seeds being bigger in size collect at the top of the sieve and are stored separately. All other seeds pass through the sieve. These are once again sieved with a smaller mesh. The cut seeds, nooks etc. are collected beneath the sieve. The seeds that are left over on the top of the sieve are of uniform quality and are gathered and bagged for purpose of sowing.

Out of the total quantity of seed-farm *kapas* procured for extracting good quality seeds for sowing purpose, only 55.10% of good seeds is thus realised in MCU.1 and 50.76% in K.5 cotton on an average i.e., for every *podhi* (280 lb.) of seed-farm *kapas* procured and processed in Coimbatore District, only 154 lb. of good quality seed is realised in MCU.1 and 142 lb. in K.5 cotton. The processes involved and the products obtained are furnished in table I.

In normal trade channels, the average outturn of good quality lint is 33.59% in MCU.1 and 29.19% in K.5. The remaining 66.41% in MCU.1 and 70.81% in K.5 form the by-products in cotton industry. The good quality lint is marketed to the mills for direct consumption. The yellow pickings and waste lint are sold away through the waste cotton merchants for spinning yarns of lower counts. The good seeds are sold away for sowing purpose and the other seeds for use as cattlefood.

The lint outturn or ginning percent is mainly a varietal character. It is influenced by seasonal conditions, moisture content, presence of impurities and the ginning machinery. The quality of seeds depends on factors like soil fertility, irrigation, seasonal conditions, damage due to

insect pests, rodents and diseases, method and stage of harvest, method and period of storage, the pre-cleaning treatment given, efficiency of labour and the ginning machinery. The invisible loss or wastage in processing varies according to variety of cotton, conditions of crop growth, seasonal factors, cleanliness and moisture content of *kapas* and efficiency of labour and machinery.

TABLE I

(Quantities are expressed as percent of the total *kapas* procured)

| Stages and products | MCU. 1 | | K. 5 | |
|--|-------------------|-------------------|-------------------|-------------------|
| | Mean of 5 seasons | Range | Mean of 5 seasons | Range |
| Total <i>kapas</i> procured ... | 100 | ... | 100 | ... |
| A. <i>By cleaning :</i> | | | | |
| 1. Stains and hard locks ... obtained | 5.40 | 2.94 to 9.24 | 2.84 | 1.52 to 3.85 |
| 2. Good <i>kapas</i> realised ... | 94.60 | 90.76 to 97.08 | 97.16 | 96.15 to 98.48 |
| B. <i>By ginning good kapas :</i> | | | | |
| 1. Waste lint obtained ... | 0.07 | 0.03 to 0.12 | 0.09 | 0.02 to 0.13 |
| 2. Good lint obtained ... | 33.59 | 32.94 to 33.97 | 29.19 | 27.95 to 30.14 |
| 3. Seed obtained ... | 58.65 | 56.76 to 60.24 | 67.31 | 66.39 to 69.15 |
| 4. Invisible loss ... | 2.29 | 0.94 to 3.03 | 0.57 | 0.49 to 0.70 |
| C. <i>By sieving seeds :</i> | | | | |
| 1. Good quality seeds ... | 56.10 | 51.82 to 57.91 | 50.76 | 44.37 to 63.75 |
| 2. Other seeds obtained ... | 3.55 | 1.64 to 4.96 | 16.55 | 4.38 to 22.02 |

APPENDIX I.

M. C. U. 1 Cotton.

A. Weight in pounds.

| Season | Kapas procured | Total stains obtained | Good kapas obtained and ginned Col. (2) — (3) | Lint obtained | | | Seeds obtained | | | Total lint and seed obtained Col. (7) + (10) | Invisible loss, Col. (4) — (11) |
|----------|----------------|-----------------------|---|---------------|------------|---------------------------|----------------|--------|----------------------------|--|---------------------------------|
| | | | | Good lint | Waste lint | Total lint Col. (5) + (6) | Good seeds | Others | Total seeds Col. (8) + (9) | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1952-'53 | 4,31,156 | 12,670 | 4,18,486 | 1,46,470 | 117 | 1,46,587 | 2,49,686 | 10,034 | 2,59,720 | 4,06,307 | 12,179 |
| 1953-'54 | 5,06,266 | 46,760 | 4,50,506 | 1,66,784 | 580 | 1,67,364 | 2,62,358 | 25,010 | 2,87,368 | 4,54,732 | 4,774 |
| 1954-'55 | 4,56,478 | 18,163 | 4,38,315 | 1,54,016 | 331 | 1,54,347 | 2,53,200 | 16,813 | 2,70,113 | 4,24,460 | 13,855 |
| 1955-'56 | 2,36,000 | 10,410 | 2,26,190 | 80,367 | 156 | 80,523 | 1,35,500 | 3,870 | 1,39,370 | 2,19,893 | 6,297 |
| 1956-'57 | 1,46,573 | 7,876 | 1,38,717 | 49,295 | 100 | 49,395 | 78,425 | 7,267 | 85,692 | 1,35,087 | 3,630 |

B. Expressed as percent of the total weight of kapas procured.

| | | | | | | | | | | | |
|-------------------|-----|------|-------|-------|------|-------|-------|------|-------|-------|------|
| 1952-'53 | 100 | 2.94 | 97.06 | 33.97 | 0.03 | 34.00 | 57.91 | 2.33 | 60.24 | 94.24 | 2.82 |
| 1953-'54 | 100 | 9.21 | 90.76 | 32.94 | 0.12 | 33.06 | 51.82 | 4.94 | 56.76 | 89.83 | 0.94 |
| 1954-'55 | 100 | 3.98 | 96.02 | 33.74 | 0.07 | 33.81 | 55.47 | 3.68 | 59.17 | 92.99 | 3.03 |
| 1955-'56 | 100 | 4.40 | 95.60 | 33.97 | 0.07 | 34.03 | 57.27 | 1.64 | 58.19 | 92.94 | 2.66 |
| 1956-'57 | 100 | 5.37 | 94.63 | 33.63 | 0.07 | 33.70 | 53.50 | 4.96 | 58.46 | 92.15 | 2.48 |
| Mean of 5 seasons | 100 | 5.40 | 94.60 | 33.59 | 0.07 | 33.66 | 55.10 | 3.55 | 58.65 | 92.31 | 2.29 |

APPENDIX II.

K. 5 Cotton.

A. Weight in pounds.

| Season | Kapas procured | Total stains obtained | Good kapas obtained and ginned Col. (2) - (3) | Lint obtained | | | Seeds obtained | | | Total lint and seed obtained Col. (7) + (10) | Invisible loss. Col. (4) - (11) |
|----------|----------------|-----------------------|---|---------------|------------|---------------------------|----------------|----------|----------------------------|--|---------------------------------|
| | | | | Good lint | Waste lint | Total lint Col. (5) + (6) | Good seeds | Others | Total seeds Col. (8) + (9) | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1952-'53 | 5,84,519 | 14,357 | 5,70,162 | 1,07,899 | 680 | 1,68,579 | 3,72,616 | 25,617 | 3,98,233 | 5,66,812 | 3,350 |
| 1953-'54 | 10,59,964 | 37,722 | 10,22,242 | 2,96,301 | 1,349 | 2,97,650 | 5,89,056 | 1,29,551 | 7,18,607 | 10,16,257 | 5,985 |
| 1954-'55 | 6,65,948 | 25,649 | 6,40,299 | 1,94,519 | 384 | 1,94,906 | 2,95,500 | 1,46,644 | 4,42,144 | 6,37,050 | 3,249 |
| 1955-'56 | 1,42,679 | 2,174 | 1,40,505 | 42,654 | 35 | 42,689 | 75,200 | 23,461 | 98,661 | 1,41,350 | + 845 |
| 1956-'57 | 15,39,015 | 33,633 | 15,05,372 | 4,63,923 | 1,162 | 4,65,085 | 6,94,150 | 3,35,426 | 10,29,576 | 14,94,661 | 10,711 |

B. Expressed as percent of the total weight of kapas procured.

| | | | | | | | | | | | |
|-------------------|-----|------|-------|-------|------|-------|-------|-------|-------|-------|--------|
| 1952-'53 | 100 | 2.46 | 97.54 | 28.72 | 0.12 | 28.84 | 63.75 | 4.38 | 68.13 | 96.97 | 0.57 |
| 1953-'54 | 100 | 3.56 | 94.44 | 27.95 | 0.13 | 28.08 | 55.57 | 12.22 | 67.80 | 95.88 | 0.56 |
| 1954-'55 | 100 | 3.85 | 96.15 | 29.21 | 0.06 | 29.27 | 44.37 | 22.02 | 66.39 | 95.66 | 0.49 |
| 1955-'56 | 100 | 1.52 | 98.48 | 29.20 | 0.02 | 29.92 | 52.71 | 16.44 | 69.15 | 99.07 | + 0.59 |
| 1956-'57 | 100 | 2.19 | 97.81 | 30.14 | 0.08 | 30.22 | 45.10 | 21.79 | 66.90 | 97.12 | 0.70 |
| Mean of 5 seasons | 100 | 2.84 | 96.16 | 29.19 | 0.09 | 29.28 | 50.76 | 16.55 | 67.31 | 96.59 | 0.57 |