

SUMMARY OF AGRICULTURAL DATA: SUGARCANE CROP 1967/68 AND 1968/69

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Introduction

This summary is based mainly on surveys conducted by the Sugar Industry Central Board and most of the data are derived from CB46/22 January, 1969. For the crop year 1967/68 areas harvested are available but these data for 1968/69 are as yet not to hand. Nevertheless the total crop harvested and the areas under cane for the latter season are known and since these are of the greatest current interest and pertinent, the 1968/69 season is included in this summary.

Estimates for the 1969/70 and 1970/71 seasons are given in the Sugar Industry Central Board CB46/22 survey but these have not been used in this summary because the area under cane has for the present reached relative stability and the future yields being largely influenced by climatic conditions must be at this stage purely speculative.

Areas under cane and industrial yields have been purposely rounded off in order to avoid the impression of undue significance being attached to small variations in areas or yields.

Total Areas and Yields

The total areas under cane and the total yield obtained for the past five years are given in Table I. It will be noticed that the area under cane now appears to be less than for the same years in last year's summary. The reasons for this discrepancy are:

some areas have since gone out of cane production,

some estimated areas under production were appreciably greater than later revealed by actual aerial survey and there may be other factors.

The table also gives the area harvested for the seasons 1964/65 up to 1967/68 and yield of cane per acre data.

It will be seen that the rapid expansion in the area under cane came to an end in 1966 and that since then the position has been largely stabilized and in fact a slight fall in area under cane is evident.

Although the tons per acre harvested, 37.7 for the 1967/68 season, was by no means a record, the total yield of cane for the season, 18.7 million tons, and the yield of cane per acre under cane, 22.4, were the best ever achieved by the industry. The percentage area harvested, 59.4, was also the highest ever attained. Good rains during the first four months of 1967 were largely responsible for this excellent crop; but unfortunately a severe drought reduced the 1968/69 crop to 15.1 million tons cane or 18.2 tons cane per acre under cane.

Rainfall and Yield

Although the area under irrigation is on the increase, there is still less than 15 per cent of the total area under irrigation and the total crop and yields per acre still remain very dependent on rainfall and rainfall distribution. This is clearly shown in table 2.

The rainfall data used here are those compiled by the Experiment Station from 54 recording centres scattered throughout the sugar belt but these unfortunately do not include stations in the newer cane producing areas of the Midlands, Melmoth or the Eastern Transvaal.

The statistic, ratio of yield to rainfall, has been introduced. As a measure of productivity in terms of moisture supply this statistic is, of course, very crude. Apart from the 54 rainfall recording stations no longer being very representative of the cane producing areas, no account is taken of the varying amount of irrigation or of the rainfall distribution. Also the tons of cane per acre under cane is not an absolute measure of productivity for any one season,

Table I

| Total Area under cane | | Area Harvested | | Tons Cane Harvested (000,000) | T.C.A. Harvested | T.C.A. under cane | % Area Harvested |
|-----------------------|--------------|----------------|--------------|-------------------------------|------------------|-------------------|------------------|
| 1st May | Acres (,000) | Season | Acres (,000) | | | | |
| 1964 | 720 | 64/65 | 328 | 11.8 | 35.8 | 19.1* | 53.2* |
| 1965 | 808 | 65/66 | 293 | 9.3 | 31.6 | 12.9* | 40.8* |
| 1966 | 837 | 66/67 | 430 | 15.5 | 36.2 | 19.2* | 53.2* |
| 1967 | 832 | 67/68 | 495 | 18.7 | 37.7 | 22.4 | 59.4 |
| 1968 | 830 | 68/69 | — | 15.1 | — | 18.2 | — |

* Area under cane for previous season used.

being affected by other factors e.g. production for farm mean peak.

To obtain a value for the ratio to give a quantitative estimate of the average value of rainfall, data for production units without any irrigation have been accumulated and compared with weighted average rainfall. The data cover the major regions, Zululand, North Coast and South Coast for the past three seasons and are presented in table 3.

The mean value for the ratio is 0.56. The apparent increasing trend shown by the ratio could, of course, be due to factors other than an increase in real productivity.

Group Production

Table 4 shows that while on the 1st May 1968 Non-European cane growers had 13 per cent of the total area under cane, yet during the 1968/69 season they were responsible for only 7.7 per cent of the total crop. Yield per acre under cane is still very low.

The Miller-cum-Planter group leads the industry at the moment with the highest yield of cane per acre under cane and averaged 24.8 and 20.4 tons cane per acre under cane respectively for the seasons 1967/68 and 1968/69.

Regional Production

In the past the cane production from 32 sub-regions were given for the year under review and the averages for the major regions i.e. the Northern areas, Zululand, the Midlands, the North Coast and the South Coast were also given. This year the results for the past three years are given and an attempt is made to link the regional production for each year with the rainfall. These results are given in table 5. This table applies to European planters and Miller-cum-planters cane only and although it is now more complete than in the past, some data, particularly Miller-cum-Planter cane, had still to be omitted from some sub-regions because it was sometimes impossible to classify with any

Table 2

| Season | Yield T.C.A. under Cane | % Area irrigated | Rainfall for year ending 31st May | | Ratio tons cane : inches of rainfall |
|---------|-------------------------|------------------|-----------------------------------|------|--------------------------------------|
| | | | Year Rainfall (inches) | | |
| 1963/64 | 18.0 | 12.2 | 1963 | 38.3 | 0.47 |
| 1964/65 | 19.1 | 11.8 | 1964 | 40.9 | 0.47 |
| 1965/66 | 12.9 | 11.3 | 1965 | 29.0 | 0.44 |
| 1966/67 | 19.2 | 12.9 | 1966 | 39.2 | 0.49 |
| 1967/68 | 22.4 | 14.4 | 1967 | 38.7 | 0.58 |
| 1968/69 | 18.2 | 14.9 | 1968 | 30.1 | 0.60 |

Table 3

| | Acres (,000) | Tons cane per acre | | | Rainfall to 1st May | | | Ratio Yield : Rainfall | | | Mean |
|-------------|--------------|--------------------|-------|-------|---------------------|------|------|------------------------|-------|-------|------|
| | | 66/67 | 67/68 | 68/69 | 1966 | 1967 | 1968 | 66/67 | 67/68 | 68/69 | |
| Zululand | 138 | 21.6 | 24.8 | 19.4 | 41.3 | 43.7 | 31.4 | 0.52 | 0.57 | 0.62 | 0.57 |
| North Coast | 85 | 22.2 | 25.8 | 18.9 | 38.3 | 41.0 | 31.4 | 0.58 | 0.63 | 0.60 | 0.60 |
| South Coast | 72 | 17.9 | 18.8 | 15.0 | 41.3 | 34.0 | 27.2 | 0.43 | 0.55 | 0.55 | 0.51 |
| Mean | | | | | | | | 0.51 | 0.58 | 0.59 | 0.56 |

Table 4
Group Production

| | Area under cane as percent of total 1st May, 1968 | Tons cane per acre harvested 1967/68 | Tons cane per acre under cane | | Percent of Production | |
|-----------------------|---|--------------------------------------|-------------------------------|----------|-----------------------|---------|
| | | | 67/68 | 68/69 | 67/68 | 68/69 |
| European Growers .. | 68.2 | 39.7 | 23.3 | 19.0 | 70.9 | 71.3 |
| Miller-cum-Planter .. | 18.8 | 38.9 | 24.8 | 20.4 | 20.8 | 21.0 |
| Indian Growers .. | 8.6 | 26.1 | 15.3 | { 10.8 } | 5.9 | { 7.7 } |
| Bantu Growers .. | 4.4 | 23.4 | 13.3 | | 2.4 | |
| Total | 100.0 | 37.7 | 22.4 | 18.2 | 100.0 | 100.0 |

degree of certainty. An attempt has been made to link regions with suitable rainfall recording centres and our 54 centres have been supplemented by others, but further rainfall stations are needed for further refinement.

Results from the Eastern Transvaal region are now included for the first time but these must be regarded as first indications.

If we exclude the results from the Eastern Transvaal then as in the past the fertile high water table Umfolozi-Umhlutuzi flats and the fully irrigated Pongola area show the highest productivity i.e. tons cane per acre under cane. As is to be expected where natural rainfall is largely supplemented by either a high water table or irrigation, the ratio of tons cane per acre per inch of rain is highest in these two areas. What is however a little surprising is to see how very dependent even these areas are on natural rainfall. At Pongola, Gollel, Nkwaleni and other irrigated areas as well as at the Umfolozi-Umhlutuzi flats the yields of cane per acre under cane still vary with rainfall and even here the ratio of tons cane per inch of rainfall remains fairly consistent for the three years under review in spite of wide fluctuations in rainfall. Similarly, yield variations for the same region in the dryland areas are largely explained by rainfall differences.

Discussion

Mr. Murdoch: We are using the figure, tons cane per acre under cane, which we regard as a reasonable approximation to tons cane per acre per annum. The figure for a particular season may be affected when cane that would normally be harvested is withheld and vice versa.

A system could be instituted whereby more reliable data on age could be obtained without having to physically obtain it from each grower but it is not certain that the extra effort involved would be justified.

The ratio of production to rainfall could be a useful means of comparison of efficiency in each area.

Mr. Bartlett: Information like this would not only help the grower to compare his performance with others in his area but would also help the industry to assess future crop production.

I believe this information can be computerised at the mill if each grower provides information as to what field he is harvesting and what variety is being cut. A computer, possibly at the Sugar Industry Central Board (S.I.C.B.) could feed back this information to the grower and to the industry.

Mr. Murdoch: The S.I.C.B. has at present a computer system containing a file for each grower, which accumulates production data by variety.

To get the more detailed information, the grower's file would have to be extended to include details of every field. The initial listings of fields and acreages for each grower could be drawn up centrally from the aerial survey maps.

These lists would have to be returned to each grower for correction and the listing of variety, ratoon, and possibly the previous date of harvest.

The information for each of the 100,000-odd fields

in the industry could be stored in the computer. Thereafter, each grower, on delivery to a mill would merely indicate from which field the cane was cut, and other data such as sucrose and tonnage recorded at the mill would automatically be accumulated in the file for that particular field. Updating of the lists of field information would only be necessary for fields where changes have occurred, such as re-planting. Updating of ratoon would be automatic.

From these records it would be possible to produce, for each field, tons sucrose per acre per month. The computer would have on record the date when cane was last received from a particular field and the age of the cane would be worked out.

If each grower was allocated to a rainfall station and the daily rainfall was also fed into the computer, it should be possible to get total rainfall for each field. The agronomists could supply a model to decide how much of the rainfall was effective and in this way figures could be quoted for every grower, not just for tons of cane per unit of time, or for cane per inch of water, but for tons cane per inch of effective water.

The industry could be divided into groups of growers with homogeneous conditions and averages could be provided for the group. Each grower could also be given details of his own performance in terms of rainfall to be compared with the group average.

With all the information so obtained, production estimates would be far more accurate.

Mr. du Toit: There is no doubt that rainfall is the most important factor in our cane production nor is there any doubt that a computer could carry out the services detailed by Mr. Murdoch.

But will each grower mark on a card which field he is cutting and his sucrose return? If so, the system should be initiated as soon as possible as it would be most valuable.

Mr. Browne: Illovo, a miller-cum-planter, has instituted a system where the S.I.C.B. chemist notes fields in his code book and the company gets back field by field returns for total tons cut, sucrose and purity so it should be possible for growers to provide information once the maps have been sorted and code numbers allocated to every field.

Mr. Chance: I am sure growers would co-operate provided they were given sufficient information initially and felt that the industry generally would benefit.

Mr. de Robillard: If monthly figures are given for tons of cane, area harvested, and age of cane, these could be combined with the rainfall to give the necessary figures and less work would be required.

Mr. Murdoch: I do not think less work would be required.

Mr. Bartlett: In order to manage a cane farm it is necessary to have standards and objectives and therefore it is necessary to keep records such as time of cutting, age, yield and sucrose. So much information will become available, if, as suggested, a grower indicates what field his cane has been harvested in that I think we should try to insist

that this item of information be supplied by all growers. Then the grower, monthly, will get, for each field, tons sucrose per acre per month and tons cane per inch of rainfall.

I therefore suggest that this meeting recommend that the S.I.C.B. should investigate the possibility of computerising all field records as a management aid to growers.

Mr. Gilfillan: Tongaat, in addition to keeping computerised statistics for yield, sucrose and rainfall, propose to include the labour required for managing, planting, weeding and harvesting the crop and possibly growers could also be asked to provide this information.

Mr. Wilson (in the chair): It might kill the whole scheme before it gets off the ground if growers are asked to provide too much information.

Dr. le Roux: Why is the area harvested required when the ratio is determined by rainfall to total acreage under cane? The total acreage under cane is fixed.

Mr. du Toit: If data is available from each field

we will be able to get figures out much earlier and particularly we will get an accurate figure for age of cane. Rainfall figures are not required—we will ensure that we are supplied with the necessary rainfall figures.

Mr. Andries: We must be sure to have the 'effective' age of the cane, i.e. the age might include one summer and two winters or vice versa.

Rainfall may not reflect 'effective' rainfall as the distribution may have been bad.

Rain might fall in July but owing to other unfavourable climatic conditions at the time the plant might not be able to use it.

Mr. du Toit: 'Effective' age will apply to a particular field and the grower will know whether one or two summers have been involved. Where we deal with industrial averages, effective age largely falls away.

Rainfall figures are already available from the Experiment Station agronomy department and effective rainfall can well be a further refinement of the system.

TABLE V

Regional Production

Note: Where figures are bracketed a normal situation is not reflected

| Region | Acres under cane 1st May (,000) | | | % acres irrigated | | | Tons cane per acre harvested | | % of acres harvested | | Tons cane per acre under cane | | | Rainfall year ending 1st May (Inches) | | | Ratio Tons cane per acre: Inches Rainfall | | |
|--|------------------------------------|-------|-------|-------------------|------|------|------------------------------------|-------|-------------------------|-------|----------------------------------|--------|-------|---|------|------|---|-------|-------|
| | 1966 | 1967 | 1968 | 66 | 67 | 68 | 66/67 | 67/68 | 66/67 | 67/68 | 66/67 | 67/68 | 68/69 | 1966 | 1967 | 1968 | 66/67 | 67/68 | 68/69 |
| Eastern Transvaal | 11.8 | 24.7 | 24.7 | 100 | 100 | 100 | — | 49.8 | — | (58) | — | (29.1) | 43.0 | — | — | — | — | — | — |
| Pongola | 19.9 | 19.7 | 20.1 | 100 | 100 | 100 | 45.3 | 46.4 | 67 | 80 | 30.3 | 37.3 | 27.8 | 25.2 | 28.2 | 22.5 | 1.20 | 1.32 | 1.24 |
| Goliel, Mkuzi | 4.2 | 4.1 | 4.1 | 89 | 91 | 91 | 34.3 | 41.3 | 66 | 70 | 23.0 | 26.1 | 17.3 | 19.5 | 32.4 | 16.7 | 1.18 | 0.81 | 1.04 |
| NORTHERN AREAS | 35.9 | 48.5 | 48.9 | 98 | 98 | 97 | 44.1 | 47.4 | (44) | (68) | — | (32.4) | 34.8 | — | — | — | — | — | — |
| Hluhluwe, Nyalazi River | 10.6 | 10.2 | 10.2 | 43 | 47 | 62 | 28.5 | 26.2 | 57 | 64 | 16.8 | 16.6 | 15.7 | 32.2 | 30.1 | 23.6 | 0.52 | 0.55 | 0.67 |
| Umfolozi, Umhlatuzi Flats | 18.8 | 18.6 | 18.6 | 6 | 9 | 9 | 50.5 | 46.8 | 77 | 79 | 39.3 | 36.8 | 29.8 | 43.5 | 31.8 | 32.5 | 0.90 | 1.16 | 0.92 |
| Mtubatuba, Eteza | 23.0 | 22.4 | 22.3 | 9 | 9 | 13 | 39.5 | 35.7 | 59 | 63 | 23.9 | 22.5 | 19.6 | 36.7 | 30.5 | 24.7 | 0.65 | 0.74 | 0.80 |
| Kwambonambi, Mpoza | 12.6 | 12.3 | 12.2 | 10 | 11 | 12 | 33.8 | 33.1 | 62 | 59 | 20.9 | 19.5 | 17.2 | 42.8 | 35.6 | 29.6 | 0.49 | 0.55 | 0.58 |
| Empangeni, Felixton, Enseleni | 37.7 | 37.4 | 37.3 | 9 | 10 | 10 | 38.0 | 40.2 | 61 | 62 | 23.3 | 24.8 | 20.4 | 40.8 | 43.7 | 30.9 | 0.57 | 0.57 | 0.66 |
| Heatonville, Ntambanana | 21.2 | 20.8 | 20.8 | 32 | 32 | 33 | 23.6 | 27.2 | 53 | 55 | 12.6 | 14.9 | 9.5 | 29.2 | 35.3 | 20.8 | 0.43 | 0.42 | 0.46 |
| Nkwaleni Valley | 11.4 | 11.5 | 11.3 | 97 | 94 | 94 | 39.5 | 42.2 | 62 | 67 | 24.0 | 28.3 | 15.9 | 26.5 | 32.7 | 17.1 | 0.91 | 0.87 | 0.93 |
| Mtunzini, Gingindhlovu | 39.0 | 38.4 | 38.5 | 8 | 9 | 9 | 38.3 | 41.4 | 64 | 68 | 24.7 | 28.2 | 20.1 | 47.6 | 60.0 | 37.5 | 0.52 | 0.47 | 0.54 |
| Amatikulu, Mandini | 15.5 | 14.7 | 14.9 | 8 | 10 | 11 | 33.5 | 37.0 | 55 | 61 | 19.4 | 22.6 | 17.7 | 42.1 | 42.9 | 32.3 | 0.46 | 0.54 | 0.55 |
| Ngoye | 7.9 | 7.7 | 7.7 | 4 | 5 | 5 | 32.4 | 36.0 | 56 | 67 | 18.6 | 24.0 | 14.7 | 38.7 | 44.8 | 30.5 | 0.48 | 0.54 | 0.48 |
| Eshowe, Entumeni | 22.1 | 21.8 | 21.8 | 3 | 2 | 2 | 37.6 | 41.0 | 52 | 57 | 19.9 | 23.4 | 15.3 | 41.5 | 45.2 | 33.2 | 0.48 | 0.52 | 0.46 |
| Melmoth | 9.6 | 10.1 | 10.2 | 0 | 1 | 1 | — | 49.2 | — | 43 | — | 20.9 | 22.9 | — | — | — | — | — | — |
| ZULULAND | 242.4 | 238.9 | 238.9 | 15 | 16 | 17 | 36.9 | 38.4 | 58 | 63 | 21.8 | 24.0 | 18.5 | — | — | — | — | — | — |
| Tugela, Newark | 2.5 | 2.3 | 2.3 | 11 | 14 | 14 | 35.9 | 37.0 | 48 | 60 | 18.8 | 22.2 | 15.1 | 44.5 | 43.8 | 33.9 | 0.42 | 0.51 | 0.45 |
| Coastal (4-5 miles inland) | 73.5 | 72.1 | 72.0 | 20 | 18 | 20 | 39.8 | 39.5 | 60 | 70 | 24.4 | 27.7 | 20.2 | 37.3 | 36.9 | 30.4 | 0.65 | 0.75 | 0.66 |
| Glendale | 3.9 | 4.2 | 4.2 | 54 | 53 | 53 | 38.1 | 42.3 | 57 | 64 | 20.6 | 26.9 | 17.9 | 30.5 | 36.3 | 26.4 | 0.68 | 0.74 | 0.68 |
| Intermediate Area: | | | | | | | | | | | | | | | | | | | |
| Kearsney, Upper Chaka's Kraal | 44.9 | 44.4 | 44.2 | 3 | 3 | 3 | 37.3 | 40.3 | 57 | 62 | 21.4 | 25.1 | 17.6 | 37.9 | 42.7 | 32.0 | 0.56 | 0.59 | 0.55 |
| Coastal Plateau: | | | | | | | | | | | | | | | | | | | |
| Doornkop, Upper Tongaat, Inanda | 23.3 | 22.9 | 22.9 | 0 | 0 | 0 | 41.7 | 43.2 | 54 | 57 | 22.7 | 24.9 | 21.5 | 41.7 | 46.2 | 32.1 | 0.54 | 0.53 | 0.67 |
| NORTH COAST | 205.0 | 202.2 | 201.8 | 13 | 12 | 13 | 39.2 | 40.1 | 58 | 65 | 23.0 | 26.2 | 19.9 | — | — | — | — | — | — |
| Bishopstowe | 6.6 | 6.4 | 6.4 | 1 | 1 | 0 | 32.4 | 43.6 | (30) | 45 | (9.8) | 19.7 | 18.5 | — | — | — | — | — | — |
| Cedara, Cramond, Seven Oaks, Mt. Alida | 9.4 | 8.4 | 7.8 | 2 | 2 | 3 | 28.8 | 35.2 | (23) | 42 | (7.5) | 14.9 | 22.5 | — | — | — | — | — | — |
| Wartburg, Fawnleas, Dalton | 31.2 | 29.5 | 29.4 | 0 | 0 | 0 | 29.3 | 37.1 | (37) | 44 | (11.6) | 16.4 | 16.8 | 42.2 | 36.4 | 35.2 | — | 0.45 | 0.48 |
| Kranskop | 9.5 | 8.8 | 8.5 | 2 | 3 | 3 | 37.2 | 36.5 | (25) | 46 | (10.1) | 16.7 | 19.1 | — | — | — | — | — | — |
| Tala Valley | 4.6 | 4.3 | 4.4 | 48 | 52 | 50 | 42.3 | 39.3 | (34) | 55 | (15.5) | 21.8 | 15.7 | 33.8 | 38.0 | 25.2 | — | 0.57 | 0.62 |
| Eston, Mid-Illovo, Richmond | 22.9 | 22.6 | 22.5 | 2 | 1 | 1 | 39.6 | 39.1 | (39) | 50 | (15.7) | 19.4 | 17.4 | 33.8 | 38.0 | 25.2 | — | 0.51 | 0.69 |
| Hillcrest, Inchanga | 6.0 | 5.7 | 5.5 | 5 | 5 | 6 | 39.7 | 41.2 | (39) | 48 | (16.4) | 19.9 | 16.6 | — | — | — | — | — | — |
| MIDLANDS | 110.5 | 104.7 | 103.7 | 3 | 3 | 3 | 33.8 | 38.5 | (35) | 46 | (12.3) | 17.8 | 17.6 | — | — | — | — | — | — |
| Coastal, N. of Hibberdene | 12.2 | 12.1 | 12.1 | 0 | 0 | 0 | 34.1 | 34.6 | 51 | 49 | 17.6 | 17.1 | 16.4 | 44.0 | 33.7 | 31.2 | 0.40 | 0.51 | 0.53 |
| Coastal, S. of Hibberdene | 29.7 | 28.9 | 28.2 | 1 | 1 | 2 | 36.0 | 36.0 | 49 | 58 | 18.0 | 20.8 | 15.9 | 39.1 | 35.5 | 28.2 | 0.46 | 0.59 | 0.56 |
| Intermediate Region | 14.5 | 14.1 | 14.2 | 1 | 2 | 2 | 41.7 | 35.6 | 47 | 46 | 20.1 | 16.5 | 13.9 | 49.0 | 35.9 | 26.4 | 0.41 | 0.46 | 0.53 |
| Coastal Plateau: | | | | | | | | | | | | | | | | | | | |
| Powerscourt, Highflats | 3.7 | 3.7 | 3.7 | 0 | 0 | 0 | 44.9 | 40.6 | 42 | 51 | 19.1 | 20.5 | 17.6 | 44.4 | 36.7 | 30.5 | 0.43 | 0.56 | 0.58 |
| Coastal Plateau: | | | | | | | | | | | | | | | | | | | |
| Paddock, Maringo, Oribi | 16.4 | 16.0 | 15.9 | 3 | 2 | 2 | 42.3 | 37.6 | 47 | 54 | 20.4 | 20.3 | 15.9 | 36.5 | 29.2 | 22.1 | 0.56 | 0.70 | 0.72 |
| Inland—Nquabeni, Hluku, Harding | 3.7 | 3.6 | 3.6 | 4 | 4 | 5 | 31.0 | 31.5 | (35) | 42 | (11.0) | 13.1 | 13.4 | — | — | — | — | — | — |
| SOUTH COAST | 136.1 | 128.1 | 128.1 | 3 | 3 | 3 | 37.9 | 36.5 | 46 | 55 | 18.6 | 20.2 | 15.5 | — | — | — | — | — | — |
| TOTAL: Europeans and Miller-cum- Planter Groups | 731.6 | 724.6 | 722.8 | 14.5 | 16.2 | 16.9 | 37.8 | 39.5 | 51.6 | 59.8 | 19.5 | 23.6 | 19.3 | — | — | — | — | — | — |