

progress there. The one in Sweden, where the first factory was established in 1882. The quantities of sugar produced were these: During the 1882-83 season, in one factory, 1,472 tons; 1889-90, four factories, 10,822 tons; 1890-91, six factories, 16,307 tons; 1891-92, eight factories, 27,241 tons; 1892-93, ten factories, 30,781 tons; 1893-94, fourteen factories, 49,200 tons.

The second country referred to is California, which affords an instance of especial interest to us, inasmuch as the general conditions prevailing there are very much the same as our own. In that country beet-sugar making on an industrial scale has commenced only during the 1887-88 season, and since then it has prosperously developed and gained popularity in a marvellous manner. It must be mentioned, prior to the year stated—viz., in 1875—the beet industry had been entered upon with excellent prospects of success, but it has failed, for the simple reason that it was attempted in a manner contrary to the experiences taught by other countries. They thought that as their crops yielded considerably more per acre, and were on the average by 2 per cent. richer in sugar than those grown in Europe, small establishments would answer at the outset. As a consequence, those earlier attempts resulted in failure. However, since the recommencement of the industry on an industrially sound basis, the following quantities of sugar have been produced in California: In 1888, 1,786 tons; 1889, 2,678 tons; 1890, 3,572 tons; 1891, 5,359 tons; 1892, 12,091 tons; 1893, 19,486 tons.

Having thus illustrated the progress of the beet industry generally, it appears necessary to now somewhat elucidate the inner working of the same. This will be best accomplished on the hand of statistics referring to the beet-sugar manufacture of Germany, which is now the chief sugar-producing country of the world. The statistical data are drawn from official sources, and are perfectly accurate, more so than those of any other country; for, owing to their excise arrangements, not only are all the beets put through, but also the sugars produced are officially weighed and recorded. The figures are the following:—

Year.	Number of Factories.	Tons of Beet-root worked.	Tons of Sugar produced.	Tons of Beet to 1 Ton of Sugar.	Sugar Yield in per Cent. of Beets.
1836-37	122	25,346	1,408	18·00	5·50
1840-41	115	241,487	14,205	17·00	5·88
1845-46	96	222,755	15,153	14·70	6·80
1850-51	184	736,215	53,349	13·80	7·25
1855-56	216	1,091,990	87,359	12·50	8·00
1860-61	256	1,719,966	145,759	11·80	8·47
1865-66	295	2,172,639	185,696	11·70	8·58
1870-71	303	3,050,647	262,987	11·60	8·62
1875-76	332	4,161,284	358,048	11·62	8·62
1880-81	333	6,323,779	573,021	11·06	9·04
1885-86	399	7,070,317	838,105	8·44	11·85
1886-87	401	8,306,671	1,023,734	8·18	12·32
1887-88	391	6,603,454	910,698	7·24	13·80
1888-89	396	7,896,183	944,505	8·36	11·96
1889-90	401	9,822,635	1,213,689	8·09	12·36
1890-91	406	10,623,319	1,284,485	8·27	12·09
1891-92	403	9,488,002	1,144,368	8·29	12·06
1892-93	401	9,811,940	1,345,904	7·29	13·71
1893-94	1,390,000

NOTE.—In comparing the foregoing table with some of the statistics previously quoted some slight discrepancies will be discovered, which, however, are insignificant. They are due to the various authorities adopting various standards—for instance, bringing the several grades of sugar to one uniform basis of equality. The preceding figures are taken from the returns of the Imperial German Statistical Bureau in Berlin. Particulars as to the year 1893-94, other than the sugar production, are not to hand yet.

The above table teaches several important lessons. In the first place, the almost uninterrupted upward tendency of the production is very significant, and needs no comment. In the second place, the progressive productiveness of the industry, as expressed in the last two columns, is very marked. In 1836-37 it took 18 tons of beets to produce 1 ton of sugar, giving a yield of only 5·5 per cent. Since that time these two figures have been improving in a remarkably steady manner, until in 1892-93 1 ton of sugar has been derived from only 7·29 tons of roots, the yield being equal to 13·71 per cent. Such result has been surpassed only once before, as the table shows, and then only very slightly—viz., in the 1887-88 season, during which the weather had been faultlessly propitious to the growing crops. The same is the case so far in the present season; therefore the already-referred-to expected large increase in the production. The success of the industry thus demonstrated from statistics, it may be added, is due not only to the perfections in the manufacturing methods (which have been of an exceedingly progressive nature, particularly so during the last ten years), but also to the vast scientific improvements in the cultivation of the crop itself. The sugar-beet grower and the beet-sugar manufacturer have in this respect, under the aid of wise fiscal legislation, co-operated in a perfectly harmonious manner, and the results speak for themselves. German statistics tell us that, with the rational scientific attention devoted to the crop, the yield of weight per unit of area has been increasing continually at the rate of something like 25 per cent. every ten years, while at the same time the quality of the roots has experienced corresponding