

"Turnip" Townshend & Crop Rotation

Charles Townshend (1675–1738) was an able politician who reached the position of Secretary of State in the reign of George I. He retired from politics in 1730 and turned his attention to his estate in Norfolk. There he introduced a type of crop rotation which was already practiced in Holland. It rotated crops on a four year basis and used turnips and clover as two of the crops in the rotation.

Turnips were not a new crop to English farming, but this was the first time they had been used in crop rotation. Viscount Townshend was later to be known as "Turnip" Townshend because of his use of this crop in the four year rotation system.

Clover is a plant which is able to add nitrogen compounds to the soil because its roots have special structures, called root nodules, attached to them. Inside these nodules are found symbiotic bacteria which feed by fixing atmospheric nitrogen and producing nitrates (nitrogen-containing salts). The clover, which is more nutritious than grass, was used for grazing the livestock. In turn, the livestock produced manure which could be ploughed back into the soil.

Townshend divided his fields up into four different types of produce with wheat in the first field, clover (or ryegrass) in the second, oats or barley in the third and, in the fourth, turnips. The turnips were used as fodder to feed livestock in winter. Clover and ryegrass were grazed by livestock. Using this system, he found that he could grow more crops and get a better yield from the land.

If a crop was not rotated, then the nutrient level in the field would go down with time. The yield of the crop from the field decreased. Using the four field system, the land could not only be rested but also improved by growing other crops. Clover and turnips grown in a field after wheat, barley or oats, naturally replaced nutrients into the soil. None of the fields had to be taken out of use while they recovered. Also, where animals grazed on the clover and turnip fields, eating the crop, their manure fertilized the soil. The four field system was successful because it improved the amount of food produced.

The gradual enclosure of land, together with the four year rotation system, had two major effects on agriculture. The first was that the harvest increased in yield. The second effect was that livestock, which no longer needed to be slaughtered before the winter months, increased in both quantity and quality.