

Spade cultivation in flanders

by Johan David in *Tools & Tillage*, 5 (1984) 1, p. 3-12

In the 19th century the spade was considered by some Belgian and foreign specialists as the characteristic tool of Flemish agriculture. People quoted the proverb 'de spade is de goudmijn der boeren' (the spade is the goldmine of the peasants). That conception which already in the last century was qualified as a "popular fallacy" (Burn 114; Kervyn 53) must be adapted according to area and period. Actually, one must probably assume that the plough was proportionally more used than the spade, however much this tool was currently used. The extent to which the spade was used must be systematically worked out, calculated and mapped from the data in the archives. Before such a long task can be undertaken – for example by scholars preparing monographs-, before comparative study can start to answer questions relating to whether people worked in the same way elsewhere, whether Flemish emigrants exported their methods, etc., it is necessary to know what peasants did with their spades and how and why they did it. That is what will be discussed in this paper, which limits itself to *spade tillage* in Flemish agriculture. Other spade work such as levelling, digging ditches, constructing dams, or planting and gathering, will *not* be considered.

The geographical limitation has nothing to do with the linguistic frontier. The adjective "Flemish" designates, as in the 19th century literature, the North of Belgium, not more.

According to the aim, people were said to dig the ground a half, one, two, three and even four spades deep. Such a statement is not very precise. The length of the spade varies in Flanders between 20 and 45 cm, and the depth of cultivation varies too, especially since the digger sometimes took clods which were shorter or longer than the blade.

When digging a half or one spade deep, the clod was completely turned up, i.e. the upper face (a) came underneath, and the spade was pushed into the ground at an angle of c. 45° (fig. 1:1 and sometimes 1:2); basculing the clod, fig. 1 (2:1 and 2:2) or undercutting it horizontally (fig. 1:3) as with the Irish loy (Gailey 1971, 232) seems to be unknown. The worker dug out a trench, into which the clod could be turned. The upper layer was often pared with the spade and thrown into that trench (superficial ploughing and later digging, to encourage rotting, as recommended by De Coster 19, was rarer). The earth from the first trench was carried to the other end of the field. The worker then dug backwards; normally he tilled the full width and then went backwards (fig. 2) but in some place, though perhaps rarely, he tilled the full length and only then went sideways. At the end, the trench was filled up with the carried earth (fig. 2.1). To avoid the laborious and long carrying of the earth, the field was often divided in two or more strips. The trench was dug out in one of them and the earth laid in the second one (fig.

2.a-3). The end of the strip t_1 was filled with earth from t_2 (fig. 2.2b) or the worker turned while digging (fig. 2.3).

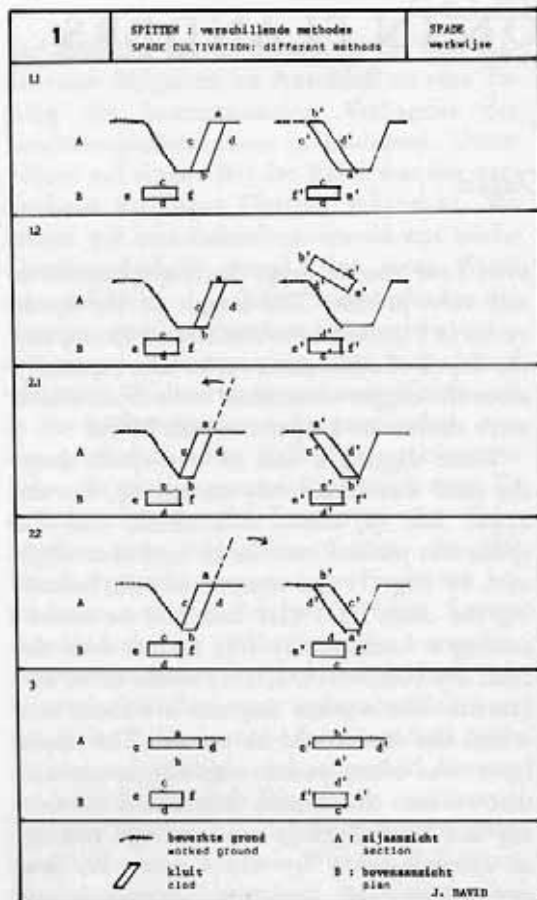


Abb. 1. Spatenkultur: verschiedene Methoden. – Bearbeiteter Boden, A: Schnitt, B: Grundriß.

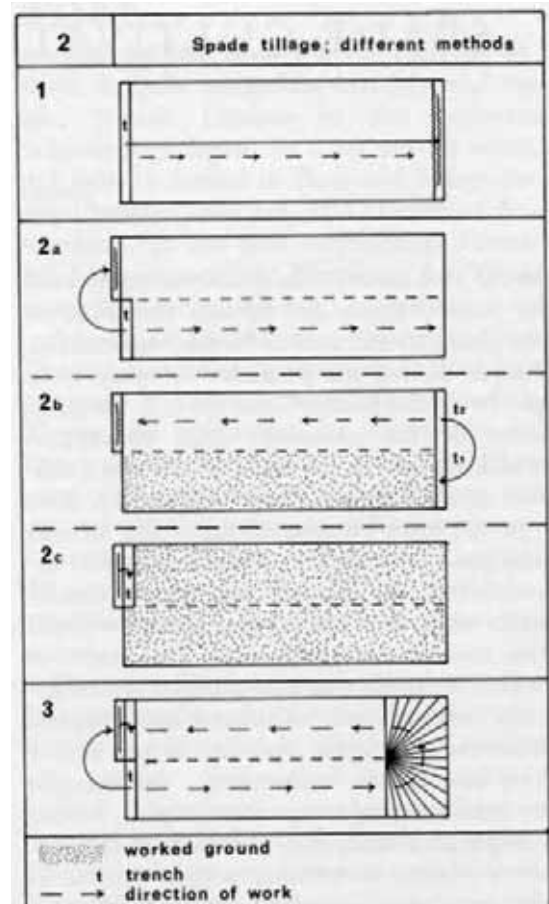


Abb. 2. Spatenkultur: verschiedene Methoden; bearbeiteter Boden; Furche, Richtung der Arbeit.

When tilled in this way, the surface of the field is level. However in Flanders, beds (i.e. narrow, somewhat higher strips separated by a trench) were very common. Still about 1900, 2-3 m (sometimes 5-6 m) wide beds were made (*Monogr. agri.* 50; Leplae 490). This was mostly done with a plough but less well off peasants did it with the spade (cf. below).

Beds had several advantages. Drainage was automatic. The water ran from the bed into the trench and, if necessary, from there into a ditch. Crops never suffered because of excessive moisture. The ground was less cold and weeds grew less, especially since the peasant could walk in the trenches and weed. Without crushing anything, he could reach the plants everywhere in the bed and keep the field clean. Where the fertile layer was thin and where there was an impermeable layer, a deeper tith was obtained and crops suffered less from moisture during the winter and from drought in the summer. Finally earth could be taken out of the trench to be spread on the bed. This was done after sowing and in the spring as soon as seed grew; for this operation, a special spade, the *schietspade* was even invented.

Those beds must be distinguished from the winter-beds still to be seen in kitchen-gardens. The latter are 60-120 cm wide, the trenches 25-50 cm deep, and the aim is a little different. They make drainage or irrigation easy but they also expose a larger surface to the air, facilitate the action of the frost and allow waste matter (leaves and so on) to be covered so that it would be half rotten when tilled in during the spring. Beds also gave a cleaner aspect to the garden (Burvenich 71); the appearance of their fields or garden has always been very important to Flemish people.

To level the ground and to give a convex form to the field, people dug likewise one spade deep. When the farmer wished to avoid rainwater standing in depressions, and to obtain a more or less equal distance between the surface and the ground water, then he dug in the normal way, except that he made the trench much wider when he had to fill up a depression. In this way he had more earth to fill the cavity. The trench was narrowed with earth from a higher point, which had to be levelled (fig. 3.1-5). Here too the field was often divided in a particular way to avoid unnecessary carrying of earth. Two methods are shown on fig. 4.1-2. The principle is that one begins to dig at the lowest point (i.e. points 1, 2, 3 etc. on fig. 4.1 and points A on fig. 4.2). When the layers were not horizontal, when good and bad soil lay intermixed on the surface, the same method was applied. The bad earth was thrown into the wide trench (De Coster 25).

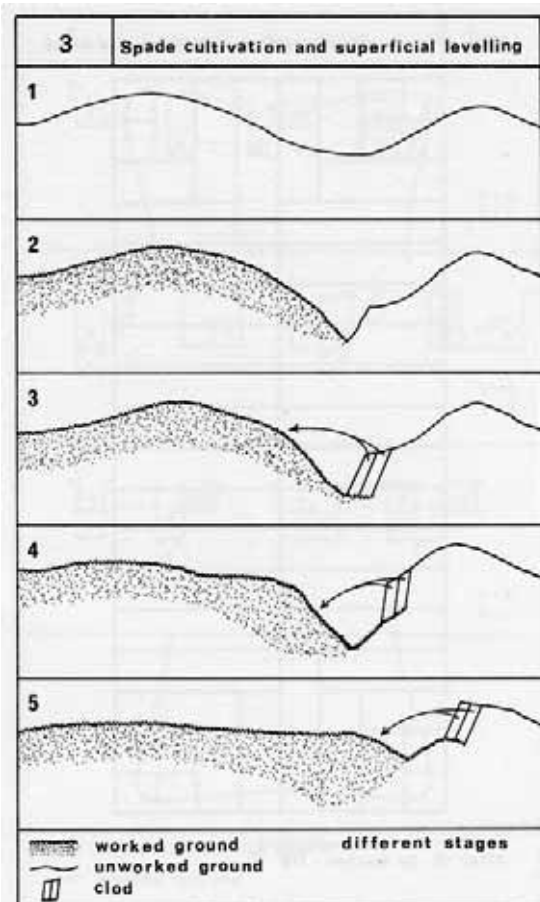


Abb.3. Spatenkultur und Oberflächenplanierung: verschiedene Stadien; bearbeiteter Boden, un bearbeiteter Boden, Scholle.

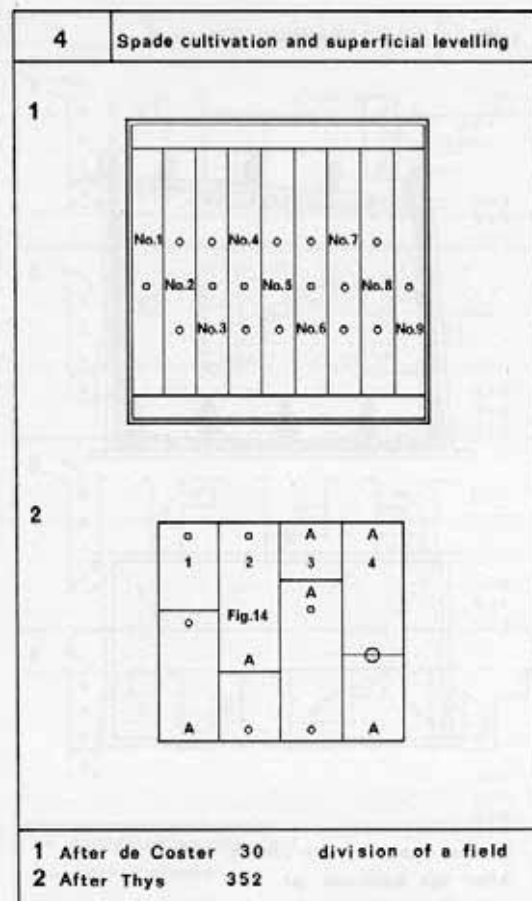


Abb.4. Spatenkultur und Oberflächenplanierung: Teilung eines Feldes.

A curiosity of the *land van Waas* (south of Antwerp) were the convex fields. The portions of land, which were generally smaller than one hectare, were one or two metres higher in the middle than at the sides. The aim was to achieve drainage. To obtain the convexity, the trench was wide in the middle. People dug around the centre: they began in the middle, raised the soil as high as necessary and then turned continually around it (fig. 5.B). When the field was much longer than it was wide, then a straight trench was dug in the middle, around which they turned (fig. 5.C). On the sides, people threw earth from the enclosing ditches.

Beside this relatively shallow tillage – through nevertheless deeper than with a plough – another type existed, which sometimes went to 1.20 m deep – *diepspitten*.

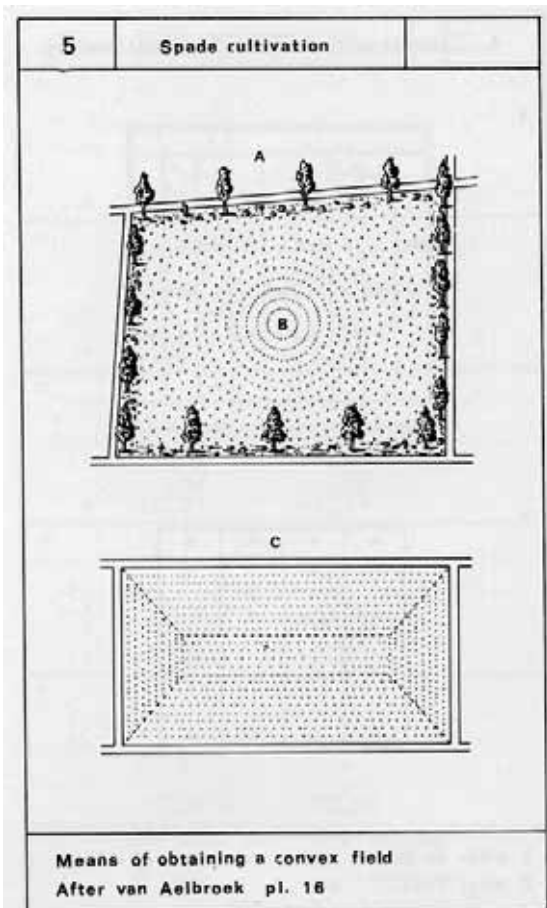


Abb.5. Spatenkultur: Anlage eines konvexen Feldes.

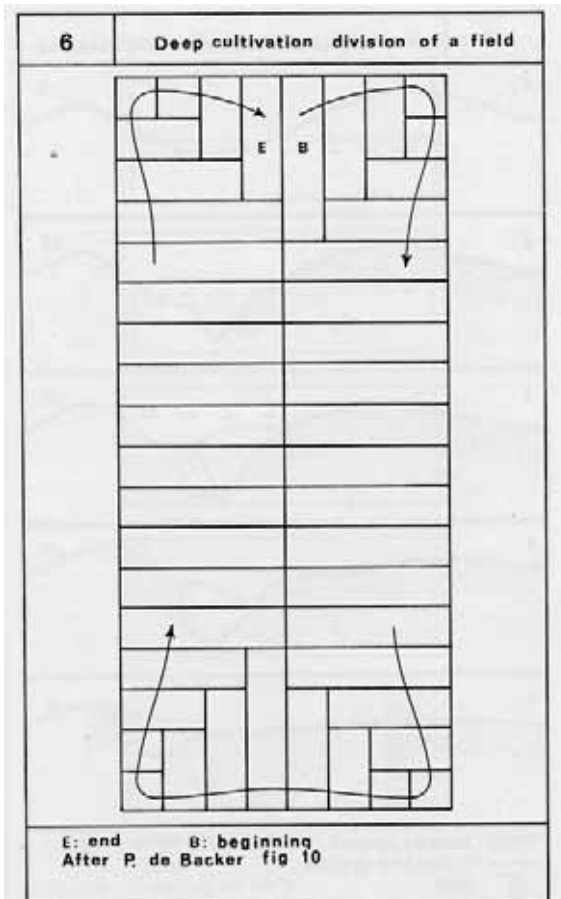


Abb.6. Tiefgehende Bodenbearbeitung: Teilung eines Feldes. E = Ende, B = Beginn.

Depending on the depth which was wanted and according to whether the layers were to be mixed or not, different methods were applied. Generally, the field was divided as by normal digging to avoid unnecessary earth transport (figs. 2 and 6). The labourer worked backwards or stayed in the trench and threw the earth from left to right or vice versa (Schwartz 1. 156). Manure was often laid between the first (upper) layer and the second (e.g. De Backer 6).

When working two spades deep, the farmer could dig out a wide trench (fig. 7.1a), till the bottom (fig. 7.1b), throw the upper layer (fig. 7.1a¹) on b, and so on. One could throw a, b, a¹ (fig. 7.2) on the side too, b¹ instead of b, a² instead of a, and so on (*Encyclopédie agricole belge* 1. 639). In this case the two layers remained at their original height. When people wished to exchange them, then they applied the method of fig. 7.3: a and b were dug out, a¹ came in the place of b, b¹ of a, and so on. (De Coster 27).

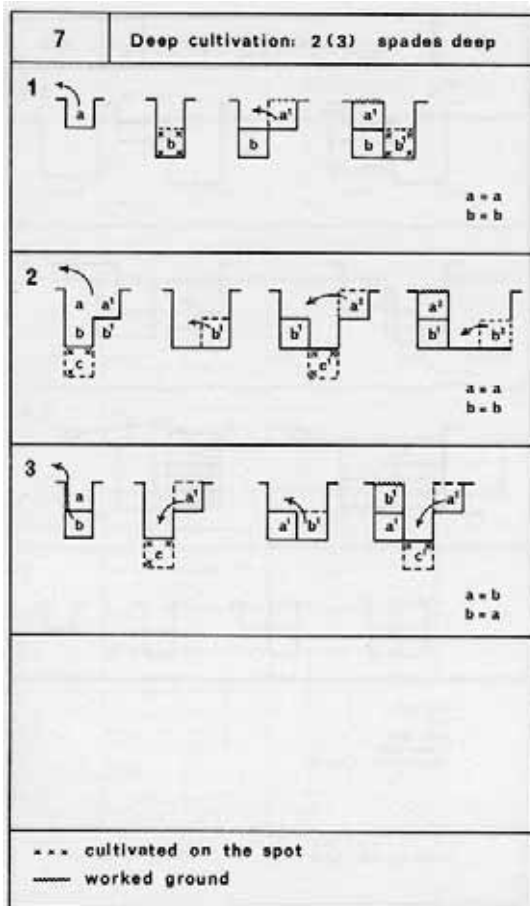


Abb. 7. Tiefgehende Bodenbearbeitung: 2 (3) Spatenstiche tief; bearbeitet auf der Stelle, bearbeiteter Boden.

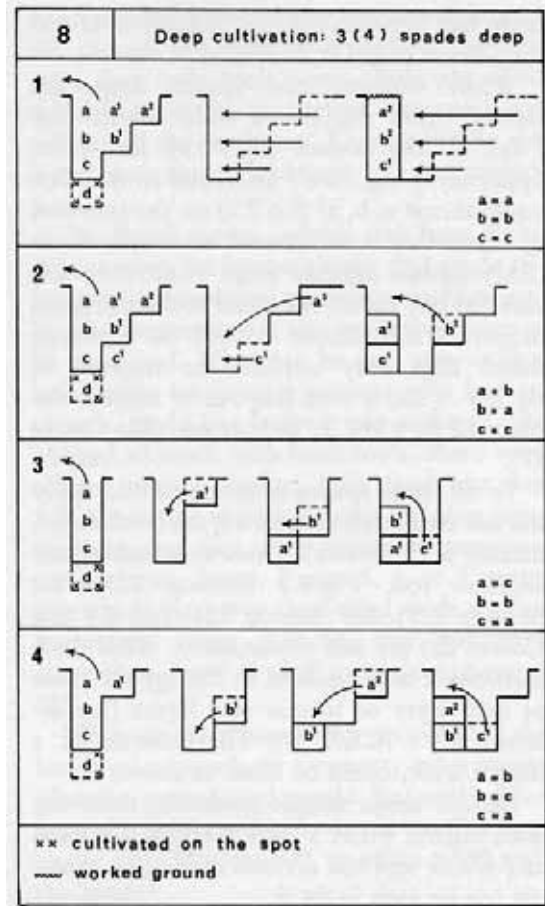


Abb. 8. Tiefgehende Bodenbearbeitung: 3 (4) Spatenstiche tief; bearbeitet auf der Stelle, bearbeiteter Boden.

To till three spades deep, one could apply the last two methods and dig the bottom (indicated with crosses). There were other possibilities too. Fig. 8.1 (Knoop 223), 8.2 (Knoop 223), 8.3 (Knoop 221) and 8.4 (De Coster 22) are self explanatory. With these methods it was possible to change the place of each layer or to mix two layers (for instance 8.4: ICKX 31). The bottom, i.e. a fourth layer, could be tilled as above.

Besides those simple methods, there existed others, where a layer was not displaced as a whole unit but divided in two; an example can be seen in fig. 9.

Those systems needed very much time (often more than one day per are (10 m x 10 m)). To till the ground deeply but in a faster way, the Flemish farmer had other solutions. He could *plough* beds and then dig out one or two spade deep trenches between the beds. Those trenches were shifted each year so that the whole surface was tilled one or two spades deep after 5-6 years (fig. 10.1.1-1.3). This method seems to have been very prevalent (e.g. De Laveleye a, 88; Lippens 21). It had the advantage that the under layer was not brought above at once (Rose 202).

Another solution, called *schupspaaien* was the use of plough and spade at the same time, which must be distinguished from digging some months after

ploughing (Monogr. agri. 65; Voelcker & Jenkins 19; De Coster 7) and from ploughing after digging (Van Iperen 65). In this case, the plough turned the first layer. Workers stood in the furrow and dug the bottom. The number of diggers and the distance between each was so determined that the plough did not have to stop (fig. 10.2). This method seems to have been used in Ireland too (Irish Farmer 1.39). When the ground was not too hard and contained not too many stones, the plough itself went twice in the same furrow. To make this possible, a trench ca. 60 cm wide and ca. 45 cm deep was often dug out between the beds (Maller 66). Sometimes the bottom of the second furrow was dug too, so that three layers were tilled (De Coster 25).

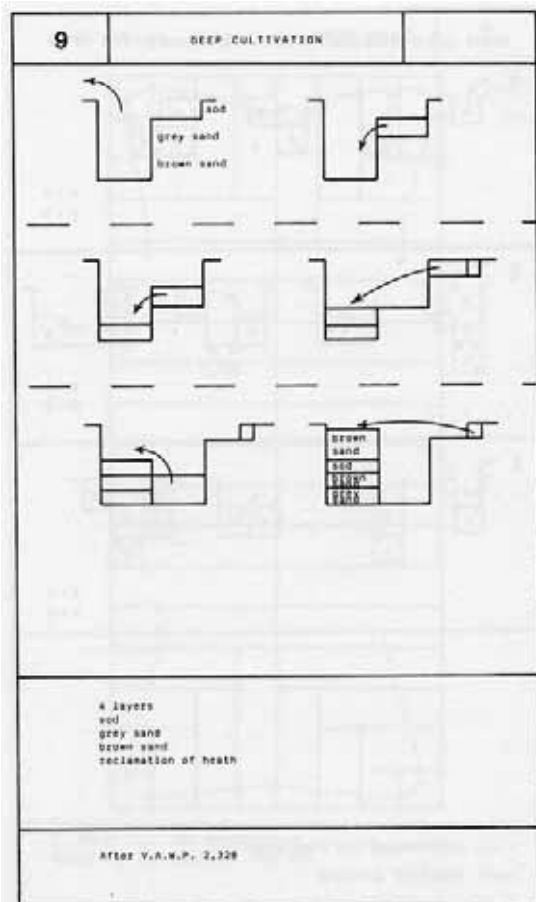


Abb. 9. Tiefgehende Bodenbearbeitung: 4 Schichten: Rasenstück (*plag*), grauer Sand (grijs zand), brauner Sand (bruin zand), Urbarmachung von Heide.

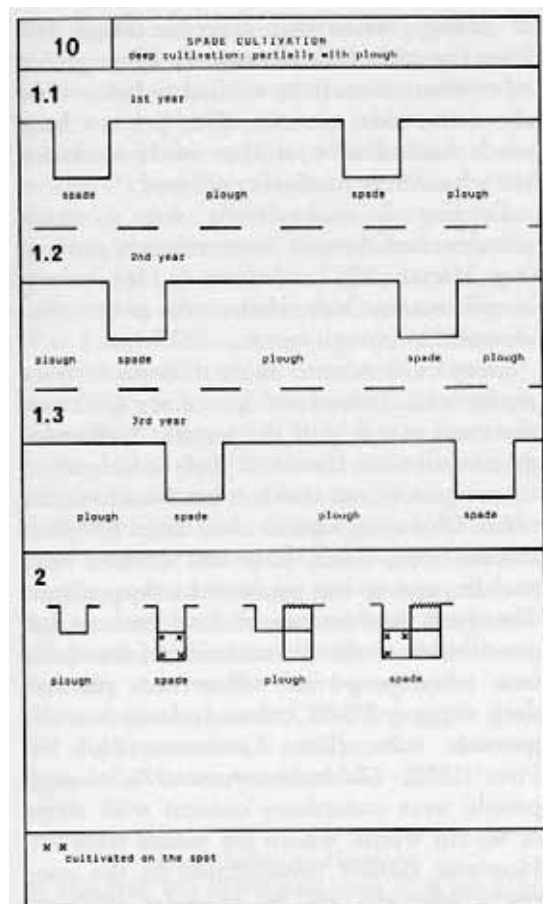


Abb. 10. Spatenkultur: Tiefgehende Bodenbearbeitung: teilweise mit Pflug, bearbeitet auf der Stelle.

Treatises and descriptions also mention an operation which had nothing to do with digging but was also done with the spade and had a similar purpose. The workers followed the plough but instead of digging the furrow, they only took a few clods out of it, which they left on the surface. Frost and rain pulverised the earth (e.g. Kervyn 55). So the layers were mixed, although in a less perfect way.

This brief survey, which will have to be expanded in the future, shows that spade tillage was a developed technique in Flanders. In what proportion it was applied remains to be examined. What can be said now is that besides the small-scale

peasant who had no plough, could not borrow one and was thus obliged to work with hand tools, there were others, who ploughed their land but dug 1/5, 1/6 or 1/7 of it, following the crop rotation; on that part, they cultivated potatoes, carrots, oats, beets. Every 5, 6 or 7 years, the whole land was thus tilled with spades. Following some authors this happened sometimes every 2 or 3 years (e.g. Kervyn 55).

What are the reasons why people used the handtool so much, in a country where good ploughs existed and could be used? Why were the field, and grass-lands too (De Kerchove 103; Mertens 67), so often tilled with the spade?

The principle factors are technical. The first was that spade work was of better quality than plough work. All the specialists agree on this¹. The earth is better pulverised and weeding more careful.

A second reason is that the spade works deeper. For several crops this was very important because the roots and rainwater could easily penetrate loose soil. In a certain way this was possible with ploughs too (e.g. two ploughs after each other) but with the spade one could reach a still greater depth, which is necessary for some crops, to break a pan. With the spade it was more easily possible to determine this depth, and there was no plough pan left. Moreover, it was possible to till the ground deeply without bringing up sterile earth, and the layers could be mixed or displaced (Kervyn 53; Radcliffe 169). Finally, the manure decomposed better (ICKX 32).

Thirdly it was possible to work and to till field which could not or could only with difficulty be cultivated with a plough. One could for instance obtain a convex surface and dig small portions of land or unlevel ground.

Finally, it was easier to till a part of a field as soon as the crops were gathered. In this way it was sometimes possible to obtain a second crop and to use the ground to the fullest extent (De Lichtervelde 28).

The quality and depth of the cultivation and the possibility of mixing the layers meant that the yield was higher, which was of course very important. The costs of digging were justified². For that reason, contracts often stipulated that the farmer had to dig 1/6 or 1/7 of the land (e.g. Kervyn 55).

The small area of the parts, that could not be extended because of the ditches, possibly played a role but only a small one. Indeed, spade and plough were often, and even perhaps generally, used together.

¹ One may wonder whether *Arrivabene* 52 was impartial when he wrote that the poor owner tilled his land with the spade only superficially and without destroying the weeds. *Thaer & Serrurier* 334 react against the thought that dug land is more fertile than ploughed but admit that weeds are generally better destroyed in the first case.

² In the 19th century large areas were reclaimed with the spade in The Netherlands. The aim was among others to reduce unemployment. This means seems not to have been very much used in Flanders.

Besides this come the economic reasons. Not everyone could afford a plough and horses. The poor farmer was thus obliged to get help from a more wealthy one, or to use the spade. That the price of the implements played an important role is unquestionable, and handwork was cheaper too. However, the importance of this should not be overestimated. Digging was often left to labourers, and plough and spade were used together. This proves that people saw some advantages in handwork. One may therefore assume that the technical interest was at least as important as the economic factor³.

The final problem to be examined is that of dating. Books that describe tillage date from the 18th-19th century. In consequence other sources must be studied to learn more about the older periods. This has not been much done till now, so that we do not know yet when these methods appeared.

Digging is undoubtedly not a recent phenomenon. Several medieval texts prove it (e.g. Mertens 67, Lindemans 1. 156), as well as miniatures. Nevertheless, the proportion of spade to plough work is unknown.

Deep cultivation is more difficult to trace in the texts. Indeed we do not always know the exact meaning of the words. Archeology has till now furnished little information. Consequently not much is known about the topic. One may assume that crops like flax, clover, hops, colza, potatoes, carrots, beet, madder, and so on, promoted a deep tillage. The great movements of land reclamation contributed to the maintenance of the spade too; when wood or willow was planted, deep digging (70-90 cm and more) was the general rule (De Kerckhove 93, 96; Piret/1.377; *Du reboisement* 97), though people were sometimes content with strips of 60 cm width, where the plants were set. However, further investigation in the contracts, inter alia, will be necessary to determine from what time, how, and how deep tillage was practised in earlier periods.

It is easier to find when the plough prevailed. In the middle of the 19th century, the spade began to retreat. The scarcity of labourers, the development of tractors, of heavy and subsoil ploughs, which made the advantages of the spade of less importance, and the use of artificial manure and chemical weeding, meant that the expense of hand cultivation became still less justified. The question in the provisional programme of the agricultural congress of 1848 about whether the spade or the plough was the best tool, is significant both as regards the use of the spade and the importance given to it (*Congres VI: "examines with respect to the soil of Belgium, the comparative effects of spade and plough on the crops, on the economy of the work and the welfare of the workers"*; see Kervyn 56 too). About 1900 the fields of the small and middlesized farms in Flanders were still often tilled with the spade (e.g. *Encyclopédie agricole belge* 1. 188) but we may

³ About that it is difficult to find precise data because the results of ploughing and digging are not exactly the same. For good cultivation several ploughings are generally necessary, crumbling and weeding need extra work, and so on; with the spade that is done all at once. *De Lichtervelde* 28 considers that diggings costs about 25 per cent more than ploughing and is thus cheaper than buying and keeping horses, ploughs, and so on. *Radcliff* 168 notes that less manure and tillage are necessary with the spade, so that spade cultivation is cheaper than people think.

assume that between World War I and II the plough completely superseded the handtool. In present day horticulture and gardening however, spade tillage, even deep tillage (e.g. Branch 23; the same method as in fig. 7.2) is still not exceptional.

It has not been possible to describe everything here but these few pages will be sufficient to show that spade cultivation can be a very complicated affair, and that much further research is necessary to learn the methods better, to find out the reasons for them, and to determine their geographic and chronological spread. Considering the lack of documentation, comparative material from other countries would be useful.

Spatenkultur in Flandern

In Flandern war des Spaten nicht bloss ein Gartengerät. Er wurde weitgehend auch zur Bodenbearbeitung benutzt: im 19. Jahrhundert betrachteten viel Spezialisten den Spaten als Kennzeichen des flämischen Ackerbaus.

Bevor wir herausfinden können, in welchem Ausmass der Spaten wirklich benutzt wurde, vor einer vergleichenden Untersuchung, müssen wir unbedingt wissen, was die Bauern mit ihren Spaten machen.

Dieser Artikel gibt eine allgemeine Übersicht über die Grabemethoden. Zuerst „normales“ Graben, auf gleicher Ebene, in Beeten und konvexen Feldern. Dann Tiefgraben, d.h. bis 4 Spatenstiche tief. Schliesslich die Anwendung von Spaten und Pflug zusammen.

Der Hauptgrund dafür, dass der Spaten so weitgehend verwendet wurde (auch auf Wiesengelände), scheint technischer Art zu sein: die Qualität der Arbeit und ihre Tiefe, die Möglichkeit, Felder zu bestellen, die nicht mit dem Pflug bearbeitet werden konnten, oder Teile von Feldern, sobald die Früchte geerntet waren. Hinzu kommt ein zweiter Grund: nicht jeder konnte sich einen Pflug und Pferde leisten. Da das Graben oft Arbeitern überlassen, und Pflug und Spaten zusammen benutzt wurden, ist anzunehmen, dass das technische Interesse zumindest ebenso stark war wie der wirtschaftliche Faktor.

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Abb. 5. Spatenkultur: Anlage eines konvexen Feldes.

Abb. 6. Tiefgehende Bodenbearbeitung: Teilung eines Feldes. E= Ende, B= Beginn.

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