Allotment newsletter 10.10.2006

Volunteer potatoes?

This year we had a good harvest of potatoes again, despite the very dry summer. They were planted quite late, and they originated from the little potato sprouts that were planted in pots before the summer. Mr. Acaster's class came to collect the goods and we even saw Mr. Acaster getting his fingers soiled (peer pressure was strong).

Just like last year, a lot of potatoes were left in the ground and I spent a good afternoon turning the soil after the class had left to see what was forgotten in the ground. The photo above shows my second harvest in relation to the small field. The close-up (below) illustrates a good deal of food for thought. Why were so many potatoes not spotted the first time?

To be fair, it takes a little experience to find all the potatoes underneath a plant, and after all those years of growing crops I have to admit that I can also get carried away with digging out the next plant before the soil underneath the first plant was properly explored. Nobody is perfect. But then I'm also a bit heavier and I can drive the fork deeper into the ground. To make even more complicated, every potato variety is different, and some have their tubers very close to the stems but deep, others spread them out more but they are closer to the surface. Experience with different varieties helps, but it is never totally predictable where they are as it depends on the soil structure. The better the soil is prepared, the wider the root system can be established, which creates a high root

surface area and helps to take up water and minerals from the soil, but it also causes a slightly wider spread of the tubers.
Potatoes left in the ground over the winter will mostly rot or are eaten by pests, but if they survive they form the so-called volunteers the next season, and if you have something else planted, for instance onions, then they grow like weeds in between your new crop. Volunteers are usually derived from very small, pea-sized potatoes that started to form at the very end of the life span of the potato plant and that never properly filled up with starch. These tiny tubers are easily missed in the soil and they will send shoots out to the soil surface the next spring.

What are weeds?
One of the pupils asked me why the weeds grow better than the crops. Well, weeds are strong and persistent, whilst domesticated crops are weak and spoiled. This is a simple answer, but it takes some detour to explain it. The continuous search for plants and animals exhibiting desirable properties to help sustain human life has taken place for a very long time and humans have selected traits like yield, quality, appearance, …., none of these are in the interest of the plant itself. For instance, tubers of domesticated potato plants have 100-fold more starch than they need to make a sprout and send it half a foot through the soil until I emerges on the surface. On the left you can see that a potato sprout contains small leaves, a short stem and a zone studded with lateral roots which are just waiting to touch humid soil. We only see the very top of the potato, the bottom of it would be two pages further down (in a manner of speaking, that is). As we learned before the summer, this tiny sprout is sufficient to make a new potato plant. It will grow, and as soon as the leaves penetrate the soil surface and the roots have grown through a few centimetres of soil, the new plant will stop depending on the supply of nutrients and become independent from the mother potato. The enormous rest of the potato (99%) is then dispensable, but will slowly rot and attract pests. We have even broken off some of these sprouts and planted them in soil with the leaves sticking out on the surface, and they grew into real plants within two weeks.

Natural potato varieties don’t have such large tubers, they are small, mostly the size of peas, and not more than cherries, and there are more of them, spreading several metres away from the central stem of the plant. This is good for the plant as it creates more progeny and spreads faster. Also, if one of the tubers gets infected, it is far from the others and the disease does not spread as fast. Human selection has generated crops which produce few very large potatoes very close to the plant. Naturally, this simplifies harvesting (an agronomic trait) and further use of the crop (the bigger the potato, the smaller the surface-volume ratio, and so less losses during peeling). But domesticated potatoes are usually are not able to compete with weeds if left to their own fate.
Now, why are the weeds so strong? We are making them stronger, because we give them a hard time. We pull them out, we cover them with soil, we try very hard to get rid of

them, and that automatically selects for weeds that produce more seed, that regenerate from tiny root fragments, and that can penetrate any soil. Weeds are extremely tough, they propagate from damaged parts, simple root fragments can grow out again as you can see from the picture on the right. Those new shoots are sharp as spears and can penetrate the most compact soil, nothing can stop them (bottom picture). We can stamp on them, turn over the soil several times, cut them down, sometimes people even poison them, and yet they always come back. It is really bad when you cannot just simply turn over the soil. For instance, our strawberry field has to be kept until the next year, and we would have to take the weeds out without damaging the strawberry plants. It is very difficult, because the soil is very sticky and the weeds don't want to come out. If you pull really hard, they will snap, and then the roots stay behind and grow out again.

All this sounds very dramatic, but it actually is possible to enjoy growing vegetables, when you stay on top of the weeds. It is important to take good care of our crops and constantly remove the weeds. It is also important to help the crops, turn over the soil to have plenty of air in between the lumps of dirt before you plant them, so that the new roots can breathe and expand rapidly. When you do it right, you can even have the crops on our side and choke the weeds (for some time at least). And then you can harvest sweetcorn, beans and strawberries…. At least when we are as lucky as last year and not as unlucky as this year…..

An allotment can be like paradise, but we all have to work hard in the first place to earn it. And one day of hard work is not enough, better to do a little bit but on a regular basis, and your allotment will be a success. This also applies to regular homework and exam results. See you again next year, and let's hope for better weather.

Best wishes,

Jurgen