Rural Radio Resource Pack

No 04/1

WEED CONTROL

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Control of weeds is an essential aspect of crop production. Weeds compete with crops for water, nutrients and sunlight; if they are not properly controlled crop yields will suffer. In the most extreme case, severe weed infestation can lead to a total crop failure. But even normal conditions of weediness cause very significant losses to the farmer, perhaps 50% or more of their yield.

Weeds are, by their nature, difficult plants to control. They can usually survive in harsh conditions, and are excellent at reproducing themselves, whether by seeds, which they tend to produce in very large numbers, or by vegetative structures and shoots. Some weed species have rhizomes, structures under the soil which can survive for long periods, and which will sprout if cut by ploughs or hoes. For this reason, weed control is one of the most demanding of farm operations.

Cultural control methods

Land preparation
Crops are most vulnerable to weeds at the early stages of their growth. Hence if crops can be kept free of weeds for the first few weeks after planting, they have a good chance of growing vigorously and being better able to compete with weed plants. Good land preparation is an important way of controlling weeds at this early stage and is especially important because it reduces the need to weed the crop during the first two or three weeks after planting. This is usually a very busy period for farmers, who will be planting other crops, and may have no time for weeding.

Deep ploughing can bury the weeds deep under the soil. By the time they reach the surface the crop has already grown up, giving it an advantage over the weeds. Harrowing is also a good way of pulling weed plants from the soil. Both ploughing and harrowing require animal traction. Burning weed plants is also often used as a way of killing weed seeds, but it does also have disadvantages however. While helping to reduce weed numbers, it destroys organic matter on the surface of the soil which is valuable for soil fertility. It also kills insects living in the field, many of which may be useful to the farmers as pest predators. If burning is done too early it also leaves the valuable topsoil exposed to sun and wind erosion, again threatening soil fertility.
Soil coverage
Like all plants, weeds need light. If farmers can cover their soil, either with crops or other material, weeds will be ‘shaded out’ - i.e. deprived of light and unable to grow. Achieving good soil coverage can be done in different ways. Firstly farmers should know the correct planting density for the crop. If crop plants are too close together they will compete with each other and not grow well. If they are too far apart they will allow too much light to reach the soil, to the benefit of weeds.

Some crops are very good at covering the soil. Pumpkins and squashes, for example, grow quickly and produce large leaves that smother weed plants. Planting ‘spreading’ crops between the rows of the main crop can therefore be a good weed control method. If chosen correctly, the two crops will not be growing in direct competition with each other. Another way of achieving soil coverage is to use mulches, made from crop residues such as sorghum straw. A thin layer of mulch protects the soil from erosion and hinders weed growth. Mulches are often used in vegetable crops.

Crop rotation
Many weed species will favour growing among particular crops, but will be suppressed by others. Rotating crops therefore helps to prevent particular weed species becoming very established in a field. It also helps farmers to distinguish weed plants from crop plants, and therefore deal with them at an early stage. For example, if a field is plagued with grass-type weeds, planting a broadleafed crop allows farmers to identify the weeds easily - unlike a maize crop, where the young maize and the young weeds will look very similar.

Clean seed and well-decomposed manure
Farmers must try to ensure that their seed is not contaminated by weed seeds. If they are buying seed, they should buy it from a reputable source which can guarantee that it is ‘clean’. Manure used on fields should be well-decomposed, a process which will kill weed seeds in it.

Methods of weeding

Manual and mechanical
What method farmers use to weed their crop will depend on what crop they are growing, and what means are available to them. Hand hoeing is the most common method used in Africa. It is very labour intensive, and the impact of both rural-urban migration and HIV/AIDS are therefore making it increasingly difficult for many families to successfully weed their crops using this method. However, in some countries, such as Zambia, new designs of lightweight hoe are at least making the task slightly easier. However, certain crops are very vulnerable to injury by hoes. Sweet potato vines, for example, if cut by a hoe, can easily become diseased. In such cases, hand pulling of weeds may be the only non-chemical method available to farmers. It may also be the only weeding method possible in broadcast crops, where the seeds are scattered rather than sown in rows.

For crops that are planted in rows, using weeding implements pulled by oxen or donkeys can be an excellent way of saving human labour. Such implements must be carefully designed and handled so that they don’t damage the crops. There are also other kinds of mechanical weeders, some powered by small engines, but these are seldom used by small-scale farmers in Africa.
Herbicides
Modern methods of control typically involve the use of herbicides, chemicals which kill weed plants. Many herbicides are selective; they only kill certain types of plant. A farmer needs to choose the correct herbicide that will kill the weeds but not damage the crop. If, as is usually the case, there is a range of different weed plants in the field, more than one kind of herbicide may be needed. Thus effective use of herbicides is only possible if farmers have an understanding of the types of weeds present in their fields.

Herbicides are also designed to work at different points in the crop cycle. Some, called pre-planting herbicides, are incorporated into the soil before the crop is planted or sown. Another group, pre-emergence herbicides, are sprayed onto the weed plants after the crop has been sown but before it has emerged from the soil. A third group, post-emergence herbicides are sprayed after the crop plants have emerged. Using the right herbicide at the right time, and in the correct concentration, is essential if the weed control is to be successful.

Farmers must also have access to the correct spraying equipment, and be able to maintain it in perfect working order. For example, if spraying nozzles become partially blocked, they will spray unevenly and be much less effective. Herbicides can also cause health problems for the users if not treated with care - farmers may need to wear protective clothing or face masks. To use herbicides effectively and safely therefore requires training, an issue discussed in the interview Mixed farming and yams. It also requires financial investment, as the chemicals are not cheap. The cost of herbicides is probably the biggest reason for this method of weed control not being widely adopted in Africa, particularly among small-scale farmers. Several interviews in this pack refer to this issue, including Upland rice and Sweet potato.

A recent alternative to spraying herbicides is to use a ‘weed wipe’. This is a lightweight tool which feeds herbicide onto a cloth, used to wipe the weeds. The developers of the weed wipe believe that it could be a good alternative to sprays, and to hand hoeing, as a way of making weeding less labour-intensive. The interview Cotton includes a description of the new tool.

Correct timing
Perhaps the most important rule for controlling weeds is timeliness. Many of the interviewees in this pack stress the value of early land preparation and early planting, so as to give farmers more time to attend to weeding when the crops are young and most vulnerable to weed competition. If possible, weeding should be done regularly, as soon as weeds emerge. However, it is particularly important that weeds should be removed before they produce flowers. If weeds can be prevented from spreading their seeds, farmers can reduce weed infestation for the following season. This also means that farmers must not ignore weeds that grow late in the season, even if the crop is already advanced. If these weeds are left to flower, they will increase weed problems for the next year. Weeds left late in the season can also make harvesting more difficult, a problem described in Groundnuts.
The interviews in this pack focus on weed control strategies for particular crops. They could therefore be used to develop a series of programmes on controlling weeds in major crops, supported perhaps by guest speakers who could comment on the points raised. Many of the issues raised in the interviews will be relevant to more than just one crop, so it will be important to draw out some of these wider lessons in your discussion. Below is a summary of the main issues raised by the interviews.

**How does land preparation help in controlling weeds?**
What are the best ways for farmers to prepare their fields? Deep ploughing and burning are two common methods of land preparation that can help to control weeds. The interview *Maize I* ends with some good advice on preventing weed problems, including removing late weeds and clearing the sides of fields. Several interviews urge early land preparation, by traditional or modern methods, including *Cotton* and *Mixed farming and yams*.

**When should weeding be done?**
While good land preparation can hold back weed development for a few weeks, usually farmers need to start weeding within 3-4 weeks of planting. Farmers should continue weeding right through the crop cycle, and always try to prevent weeds from flowering. Timely weed control is stressed in most of the interviews in this pack, particularly *Upland rice* and *Groundnuts*.

**When can weeding damage the crop?**
Farmers may need to change their weeding methods during the crop cycle, so as not to damage their crop. Hoeing a mature *Sweet potato* crop risks damaging the vines, which can allow the crop to become diseased. Onions are particularly vulnerable to damage, either by hand weeding or hoeing, making herbicides the ideal option for weed control. (See *Vegetables*).

**How can crop rotation and intercropping help in weed control?**
Rotating crops can help in identifying weeds (see *Maize II*) and preventing weeds taking over a field (see *Groundnuts*). What rotations are suitable for the common crops grown in your country? Intercropping an upright crop like sorghum or maize with a creeping crop like pumpkin also hinders weed growth (see *Sorghum, Maize I* and *Maize II*).

**Are herbicides an appropriate technology for small-scale farmers?**
Several of the interviews in this pack discuss the advantages and disadvantages of herbicides. Weed specialist David Mburu explains the benefits of herbicides for *Vegetable* cultivation, and there is also a discussion of different types of herbicide in *Beans*. The need for farmer-training are emphasised in *Mixed farming and yams*, while the problem of cost is mentioned in *Upland rice* and *Sweet potato*.

**How can farmers reduce the time needed in weeding?**
If farmers cannot afford to use herbicides, another labour saving option is the use of animal traction. This will usually be suitable for crops such as maize, where the part to be harvested is above the ground. However, for root crops like yams, using animal-drawn implements is likely to injure the crop. The interviews *Upland rice* and *Mixed farming and yams* discuss these issues.
Weed control

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An agronomist from the University of Zambia, Tamara Kambikambi, discusses traditional and modern methods for preventing and controlling weeds in maize.

Maize II
Shupikai Ndigwirei, a Zimbabwean agriculture student explains cultural and mechanical methods of weed control for maize crops.

Mixed farming and yams
Nkosu Ephraim, a plant health specialist from Cameroon, describes land preparation methods, timing of weed control, and limitations that apply to herbicides and animal traction.

Beans
Festo Ngulu, an expert in plant disease, discusses land preparation and weed management, both chemical and manual, in the context of bean production.

Groundnuts
Wellington Phewa, an extension methodology officer describes the different methods that farmers can use for controlling weeds in groundnuts during the crop cycle, and the advantages of crop rotation.

Cotton
Dr Watson Mwale of Zambia’s Cotton Development Trust explains some recent developments in weed control for cotton, including the weed wiper, and discusses weed control in conservation farming systems.

Sorghum
Crop specialist Casper Moyo advocates intercropping and use of ox-drawn weeders in sorghum production, and stresses the importance of crop spacing and early weeding.

Upland rice
Mr. Bojang, Head of The Gambia’s Agricultural Communication Unit, encourages upland rice farmers to take advantage of animal traction, as a cost effective way of controlling weeds and carrying out other field operations.

Sweet potato
Research scientist Thumbiko Mkandawire discusses hoeing, hand weeding, intercropping and herbicides as methods of weed control in this crop.

Vegetables
Weed specialist Dr David Mburu advises vegetable farmers on the use of herbicides and the importance of good seed bed preparation.
Weed control

Maize I

Cue:
Despite greater diversification in crop growing, maize is, and will continue to be, an extremely important crop in much of Africa. It is also a crop that is badly affected by weeds. Grasses and sedges are a particular problem to farmers, because they are very similar in structure to maize; this means that if farmers want to use a chemical control method, they must be careful to choose a herbicide which will only kill the weeds and not harm their crop. Hand hoeing to remove these weeds is also difficult, because many of them have underground structures, which lie deep in the soil. If these are left behind after ploughing or hoeing, they can quickly sprout again, sometimes making the level of infestation worse than before. Maize is also vulnerable to broadleaf weeds which can grow in huge numbers around young plants, taking valuable water and nutrients.

So how can farmers tackle these weed problems? Tamara Kambikambi is an agronomist at the University of Zambia, where she lectures on weed science. She spoke recently to Daniel Sikazwe about some of the traditional and modern methods for controlling weeds in maize.

IN: “Small scale farmers traditionally burn…
OUT: ….come and infest your field.”
DUR’N 6’52”

BACK ANNOUNCEMENT:
Tamara Kambikambi ending with some advice on how to prevent weeds from infesting maize fields.

Transcript
Kambikambi Small scale farmers traditionally burn their fields in the off-season. The reason for burning of course is partly to get rid of the excessive vegetation, but especially if there is a lot of vegetation, the heat generated does help to burn some of the weed seeds, so that as the new season begins they have less infestation. Traditionally small scale farmers fallow their fields. You find that that helps to get rid of some of the hard-to-kill weeds, those weeds which they have no other way of getting rid of, they can fallow the field, leave it fallow for a couple of years - in fact those are the reasons why the chitemene [cut and burn] system evolved, because they knew that that helped them to get rid of the weeds. Then they have the system of intercropping. Normally small scale farmers do not plant in monocrop; they will have several crops. they will have maize which they will intercrop with maybe some beans or cowpeas, and some pumpkins and gourds and watermelons. Those have big leaves which cover the ground and shade off the weeds. So you’ll find that because of some of these systems which they have, they are able to contain the weeds. Of course they will have to go in with the hand hoe weeding, but of late you find that they are actually taking up new technologies. For example, there is this new technology of the weed wipe, which has come in, and it is within the technical know-how and capability of quite a number of small scale farmers. So a number of them are starting to take up that technology, and all these are helping them to manage the weeds effectively.
Sikazwe  *In terms of cost how do you compare the traditional methods that you have described, and the new methods for small scale farmers?*

Kambikambi  It’s not really looking at the cost, per se, but looking at the outcome. So these new methods, which are coming in, are able to take care of certain problems which are not easily taken care of by the traditional methods. You see for example with increased pressure on land, it’s not possible to fallow the land anymore, so that means that instead of fallowing, they have to come up with a novel method of taking care of the weeds. So in the end, to me, it’s not trying to look at how many kwachas it costs to fallow, and how many kwachas it costs to use a weed wipe, but what is going to be most effective, so that at the end of the day they will be able to get a harvest.

Sikazwe  *The problem of weeds, from what you have talked about, is quite a big one. Do you think there’s need for massive investment by the government into weed control?*

Kambikambi  Definitely there is need for the government to ensure that more effective methods of weed control are evolved. Because we have a lot of challenges. We know we have on our hands a huge HIV/AIDS epidemic, which means the labour force is reducing. So there is need to come up with new methods, which will ensure that those people will still be able to manage to grow some crops, weed them effectively, harvest and still continue to live in the presence of such problems. So yes, there is big need. Currently we have for example in maize so many hybrids - I think I can count up to fifty. Most of those can yield over eight tonnes per hectare. But when you come to the ground, we are yielding much less, and I contend that one of the major reasons why we are yielding much less is the weed problem. Because even when you tabulate the labour that goes into, for example, maize production in Zambia, about 48% of the labour goes towards weeding. So I think weeding is something that we need to look at seriously if we are to increase our productivity, and hence improve our household food security.

Sikazwe  *So far we’ve talked about problems. Are there any uses that you’d want to encourage small scale farmers to put some of these weeds to, because they spend a lot of money trying to remove the weeds?*

Kambikambi  They already use some of the weeds: Amaranthus is used as a relish, the cleome species which are the *suntas*, are also left in the field. You’ll find that there are quite a number of weeds that are used as traditional medicines. So yes, they use them, and they are actually important to their well-being. But when it comes to them competing with the planted crop, then it becomes a problem, because much as you can use them for nutritional purposes, if your nutrition is bad, then even the medicine is not going to make too much of a difference, because you need to couple any medication with good nutrition.

Sikazwe  *Is there something with regard to maize and its weeds that we have not talked about, that you would want to say to small scale farmers to encourage them in containing these weeds and probably making use of them?*

Kambikambi  One thing that farmers should do is to try and plant early, because if they are to plant early, it normally means that they will prepare their land early, and that tillage practice is primarily for weeding, although it also creates a good seedbed which enables the crops to grow well. And normally if you plant early, then you still have enough labour and enough time to weed. But also
issues of intercropping, and the other issue I would like to mention here is to try and use some of these preventive methods. For example, never leave the weeds which come late in the season, because those will seed, and drop the seeds which will be a problem in the next season. So if farmers in the late stages could ensure that they also remove those weeds, it will really help. And if they can even clean the sides of the fields, because that’s the inoculum which goes into the field. So if you are only weeding your field, and leaving the sides, you can actually be harbouring enough inoculum to come and infest your field. End of track.
Weed control

Maize II

Cue:
For maize farmers, controlling weeds is one of the most important tasks in achieving a good harvest. Maize plants emerge from the soil more slowly than weeds, and do not cover the soil until they are two or three months old. This means that while the maize plants are young, there is plenty of opportunity for weeds to grow around them. And if farmers use large amounts of fertilizer on their maize crop, this can also help the weeds to grow even faster. As a result, weeds can become a serious competitor to the maize plants, taking much needed water and nutrients, unless careful weed control is practised.

Controlling weeds usually involves either killing the weeds that emerge, or using cropping practices that prevent weeds growing in the first place. In our next report, an agriculture student from Zimbabwe called Shupikai Ndigwirei, explains to Sylvia Jiyane about methods of weed control that may be suitable for small-scale maize farmers who have little capital to invest in chemicals or mechanical weeders.

IN: “Using certified seeds, weed-free …
OUT: …hand hoeing and rogueing those weeds out.”
DUR’N 3’44”

BACK ANNOUNCEMENT:
Shupikai Ndigwirei advising farmers to use a mixture of methods in order to make their weed control efficient.

Transcript
Ndigwirei
Using certified seeds, weed-free seeds can help the farmer to reduce the weed infestation and also the farmers can practise crop rotation. Like in maize there is the Shamba grass which almost resembles maize when it is young. So crop rotating with other broad-leafed crops like groundnuts may help to identify and destroy the weeds.

Jiyane How else can farmers minimise the competition between weeds and the maize crop?

Ndigwirei To have maximum canopy cover the farmer might tend to intercrop that is growing of two crops in the same field. For example, maize can be intercropped with cowpeas or groundnuts which will help to cover the ground so that the weeds are suppressed. And also most farmers use manure, this might be a source of weeds. So farmers aim to use well-decomposed manure of which the seeds of the weeds will have to be destroyed. And also some farmers burn their weeds after harvesting. They burn off the weeds, which helps to burn the seeds of the weeds so that the next season they have less weeds germinating.

Jiyane And as a student you once went for farm practice or farm attachment. From your experience what would you say are the strategies for weed control appropriate for smallholder farmers growing maize?
Ndigwirei  
For smallholder farmers growing maize I think the farmers who don’t have the capital to buy many implements or herbicides which are expensive, so they should base their control on cultural weed control and mechanical weed control. Under mechanical control most of the farmers use hand hoeing as the method of control because it doesn’t need any capital. And hand hoeing is basically it is labour intensive, more labour is required to do the weeding. And since maize is grown in rows, inter-row cultivation can be done using cultivators or other implements so that the weeds can be removed between the rows of the maize. And the weeds which might be left during inter-row cultivation they might be removed by rogueing out and basically they carry them away from the field so that they will burn them after they have dried. And some farmers also use a chemical control like herbicide can be used to eliminate the weeds.

Jiyane  
And in terms of the methods would you advise farmers to use one method or they should use a mixture of methods?

Ndigwirei  
I think for maximum efficiency of weed elimination the farmers should use all methods so that it will be economic for them to control the weeds. Because if they base it on one method, for example chemical control, we find that after spraying there might be some weeds which are left. So this means you can’t come up with a herbicide again and spray on those few weeds you have to use another method like mechanical weed control, like hand hoeing and rogueing those weeds out. End of track.
Weed control

Mixed farming and yams

Cue:
When clearing land for cultivation, one of the most simple and cheap methods to use is burning. However, despite being a popular and traditional farming practice in many parts of Africa, burning does have some unfortunate side effects. While it may destroy weed seeds, and therefore reduce weed levels in future crops, it also destroys organic matter in the topsoil, making the soil more prone to erosion and less able to hold water. Burning also kills plants and animals, some of which may be useful pest predators.

If farmers want to avoid burning, what alternatives are there? Simply turning over the soil to bury the unwanted plants is possible, but deep ploughing can be more effective. This pushes weeds and weed seeds deep into the soil, making them less able to compete with young crop plants. Of course when the weeds do emerge, they still need to be dealt with. To find out more about weed control options available to small scale farmers, Martha Chindong spoke to Nkosu Ephraim, who is in charge of plant health services in the North West province of Cameroon.

IN: “To start off when farmers …
OUT: …few farms they will harvest.”
DUR’N 5’34”

BACK ANNOUNCEMENT:
Nkosu Ephraim was talking to Martha Chindong.

Transcript

Nkosu
To start off when farmers want to farm in certain areas they first burn the grass on the surface and then they do the ploughing. The majority of the seeds now have been burnt. But those who don’t do the burning and they just bury, the burying is not enough as to have the seeds buried deep so the seeds are shallow and then they come out. When they have planted say their maize and the seeds of this weed now come up and are competing with the maize at a certain stage they have to do the first weeding. Most of the time some people prefer to do just one weeding and they do it when the crops are around knee level. So that to the farmer is the only means he can try to deal with the weeds, hand weeding.

Chindong
When you talk of controlling weeds, when the crops are at knee level, I immediately think of crops like maize. What of creeping crops?

Nkosu
For creeping crops like sweet potatoes, normally sweet potatoes will grow and cover the surface of the soil and it will prevent the weed from taking a good dimension from the word go. So if this sweet potato goes for about two months on the field the leaves are covering the surface of the soil and you’ll just need to come along and pick the few weeds that are there. But generally if you have weedy you have to understand what type of weed you have because if they are Gramineae, they will have to produce seeds and then the seeds fall back on the soil. So you just have to know that, you have to do away with the weed before it gets to producing the flowers and forming the seeds.
Chindong: So it’s better to tackle the weeds before they fruit?

Nkosu: Yes if the weeds have to produce seeds, tackle them before the flowers come out.

Chindong: You talked of weed control, that is hand picked weed control. Have you ever tried to find out why farmers prefer that method?

Nkosu: Yes the farmers, the first complaint they will tell you is they don’t have money. They don’t have money for an improved method of doing this weed control. In big establishments they do weeding using herbicides and the results are quite good, the impact is there. But the farmers cannot go into using these herbicides because of their small sized farms. The farm activity will not be cost effective if they have to go in with these herbicides. So most of what they do in this province is hand weeding.

Chindong: I think these pesticides are delicate because farmers can even buy pesticides and destroy their crops?

Nkosu: Yes most of them will have cases like that where somebody has used a pesticide in a sprayer and came back and he had to go to his tomato farm, and did not actually know that he had to actually clean his sprayer very well. He had to put his fungicide in the sprayer and went and thought that he was treating blight on his tomatoes, but only discovered that the herbicide he had in the sprayer burned all the tomatoes. If they want to go into it they have to have training of how to handle pesticide sprayers and so on, knowing the difference between the pesticides and how to handle them. If you don’t know that, just know that you are in for trouble and you can even kill yourself.

Chindong: If they were to use animal traction can they apply it in weeding yams?

Nkosu: With yams it would be a little bit difficult. With animal traction we are looking at crops that are not tubers. That can be done for maize and when we do that with maize you weed easily. And in the province we have some traction farmers and that’s what they are practising. They have their planting distances, they know how the cows move, they know how the mould moves and there is nothing beneath that you can destroy. If you tamper with the roots of yams carelessly, the yields too will drop very drastically.

Chindong: So in a nutshell, can you tell the farmers the factors they should take into consideration when controlling weeds in their farm, especially mixed farming?

Nkosu: For mixed farming, the factors that we have to check, if it’s a very new farm normally they burn the grass because the grass is thick up here. When they burn the grass they reduce the number of weeds that will eventually come on the farm. If they don’t burn and they and they turn, they should do deep ploughing. If they do deep ploughing, the seeds of what they don’t want is buried deep enough and it takes the seeds a very long time for them to come out and grow and try to compete with the crop or the particular pure cropping that you want to do. And then they plant, they should know that from 3 months onwards they have to already be thinking of how to come and do the weeding. In certain areas, hotter areas the weed will germinate faster and in those hot areas they do the weeding twice because of the rate of growth.
Chindong  *I think if the people should follow this example they might be safe from the weeds consuming their crops?*

Nkosu  Yes if they can follow this example and reduce for them the number of farms they are getting into during one season. You will find a women who has a small holding of about 10 by 20 metres and she has about 10 of them, so the time for her to go around and come back to that first farm is already more than the time that she was supposed to have been doing weeding. So some of them just abandon the farms so the labour has been wasted and a few other things. Whereas if they could take all these procedures that we have given and they have to follow up with very few farms they will ensure that in those very few farms they will harvest. *End of track.*
Weed control

Beans

Cue:
Like other crops, beans can be seriously affected by weed infestation. Farmers living around Arusha in Tanzania, for example, have major problems with a weed known as Mexican Poppy, and the presence of this, and other weeds, is one factor that is limiting bean yields to just 400 kgs per hectare. Festo Ngulu, a plant health specialist at the Selian Agricultural Research Institute spoke recently to Lazarus Laiser about the ways in which smallholder farmers are being encouraged to tackle the problem of weeds in their bean crops.

IN: “Broadly speaking we have two …
OUT: …low crop and that’s a loss.”
DUR’N 3’55’’

BACK ANNOUNCEMENT:
Mr. Festo Ngulu of the Selian Agricultural Research Institute in Arusha, Tanzania.

Transcript
Ngulu Broadly speaking we have two types of weeds, these are broad leafed and the grasses. The intensity or the combination of these two types varies from one place to another but severe weed infestation can cause as much as 80% crop loss. So I think it is important to take note of the fact that they are one of the major constraints to bean production. Now there are several methods which farmers can use to control the weed infestations in their farms. One of the key methods is to prepare land correctly. That is to make sure that the land is well prepared and all the weeds are ploughed under before the rains come. The second method is to make sure that the farmer uses weed free seeds. In some cases you find that there are some weed species which are disseminated along with our seeds. So I think it is important for the farmer to make sure that he has a reputable source of his seed.

The second aspect I think is the actual management of weeds in the farm. Farmers are advised to make sure that their farm is weed free at least prior to flowering. They can use a hand hoe if he is a small-scale farmer or they can use herbicides. Some of these are pre-planting herbicides, some are pre-emergence herbicides and the last type is post-emergence herbicides. The herbicides are particularly effective on large-scale farms in the sense that the farmer can conduct the operation within a short time and can ensure effective control of the weeds.

Laiser How effective are these methods?

Ngulu They are quite effective. But one thing to note here is we have our different herbicides and none of these are effective against all weed species. So I think it is important for the farmer to select a combination which can tackle the weed spectrum in his field effectively.

Laiser When do you think is the right time to use these methods of weed control?
**Ngulu**  It depends on the type of herbicide he is using. For instance I mentioned the pre-plant herbicides, these have to be applied before the farmer actually plants. But they have to be incorporated in the soil. Now for the pre-emergence, soon after planting the farmer has to spray the herbicides before the seedlings emerge. And for the last category, that’s the post-emergence the farmer has to come in immediately after the crop has come up just when the weeds are starting to shoot from the ground.

**Laiser**  What strategies of weed control are mostly appropriate for smallholder farmers in growing this crop?

**Ngulu**  I think hand weeding is okay after flowering because at that time the canopy of the bean plants will have come together and effectively covering the soil surface. So you’ll have occasional weed plants coming up and this is where I think hand weeding is practical. But during the early stages before flowering I think hand weeding is not effective. We encourage them to use a hand hoe if they cannot afford to buy the herbicides. It is a bit tedious and for those who have large acreages I think it is not advisable for them to adopt this method. But for the small-scale farmer and especially where some of them inter-crop maize and beans I think this is the only way, it is the only method which they can effectively use to control the weeds.

**Laiser**  What are the key factors that farmers should remember about these methods you have mentioned?

**Ngulu**  I think the key factor is timeliness of the different operations. That if you are going to prepare your land, prepare it early enough so that the weeds decompose before the rains come or at least weeds like couch grass. If you do the ploughing during the dry season you are bound to kill a large proportion of those stems. The other thing is, the important thing is for farmers to come in and do the weeding operation before the weeds actually have an upper hand on the bean plants because as you mentioned they compete with the bean plants for nutrients, water and light. So the moment the weeds get an upper hand it means that the farmer will get a very low crop and that’s a loss. 

*End of track.*
Weed control

Groundnuts

Cue:
Protecting groundnut seedlings from competition with weeds, is one of the most important factors in getting a good harvest. Unfortunately, the time of the early rains when this weeding needs to be done is also the time when farmers are most busy, for example planting other crops. But if weeding of groundnuts is delayed, yields fall sharply, so what can farmers do to solve this difficulty? One important strategy is good land preparation. Burning crop residues and weed plants just before the first rains helps to clear the land, and the ash can be lightly dug into the soil. If animal traction is available, deep ploughing and harrowing can delay the emergence of weeds by several weeks, giving farmers time to finish their other planting tasks before needing to weed their young groundnut crop. Herbicides applied either before or after the groundnut seedlings emerge are a good way of reducing the labour requirement of weeding, but are not commonly used because of the costs involved.

Our next report features Wellington Phewa, an Extension Methodology Officer from Lilongwe in Malawi, who talks to Excello Zidana about common weed control practices used by Malawian groundnut farmers.

IN: “Weed control is very …
OUT: …which the farmer might access.”
DUR’N 4’53”

BACK ANNOUNCEMENT:
Wellington Phewa emphasising the importance of good weed control in groundnut crops.

Transcript
Phewa  Weed control is very very important because of several reasons. One of them is to try and reduce the competition for nutrients, for sunshine that exists in a field where the weeds and crops are growing together. Another reason why we have to control weeds is to reduce the area where pests and disease parasites can hide.

Zidana Can you elaborate more on that one?
Phewa They are certainly insect pests which sometimes need to hibernate or breed or even to stay over from one season to another on those crops that are growing, which are weeds, which if they were cleared probably would have cut down their life cycle and therefore reduced their population.

Zidana When is weed control supposed to start?
Phewa Weeds are supposed to be removed as soon as they appear because we don’t want them in the field. So as soon as you are able to see that there are weeds here they have to be got rid of.

Zidana Lets talk of groundnuts. How is weed control done in groundnut?
Phewa In a groundnut field there are normally, in a Malawi context, two ways of controlling weeds. The first one is the hand hoeing using a hand hoe. This is normally done maybe once, sometimes twice, but it’s normally done when
the crop is still small. The second type is the hand weeding, direct uprooting of the weeds in the field, especially after the crop has started podding.

Zidana  
*Why is it not recommended for somebody to weed his field using hoes when maybe the crop is podding?*

Phewa  
After the crop has started podding, if you bring in a hand hoe normally you disturb the pods that are just establishing. And in the process you lose some of what would have grown into mature nuts in the later stages. Hence it is recommended that the weeds should be removed by hand, by just making sure it is the weed only that is uprooted without disturbing the soil structure.

Zidana  
*Why is weeding done several times in the groundnut field when the groundnut is ready maybe for lifting?*

Phewa  
Especially for groundnuts, in the later stages if the weeds are left it becomes very very difficult when you are lifting the nuts because there will be a lot of weed and in the process you may leave behind a lot of nuts which you may not trace in the weedy field. Again the weeds invite pests especially rats, rodents, which are a menace to our matured crop if they are not properly controlled.

Zidana  
*How do you look at weed control using maybe hoes and hands as opposed to chemical weed control?*

Phewa  
Chemical weed control is normally the easiest but the most expensive and in the context of a Malawi farmer it’s very difficult for him to afford the chemicals that would be required for weeding. Hence we still depend on the manual, hand hoe use and the physical uprooting of the weeds themselves.

Zidana  
*Many people say that crop rotation also helps in the weed control. How do you look at crop rotation?*

Phewa  
It is true that crop rotation assists in the reduction of certain types of weeds in the fields. You know naturally certain crops do better with certain weeds than others. And if for example a type of weed is growing in a field where a certain crop which it does not properly grow together with for a year, the population will have dropped by the next year. So if you grow the same crop in the same field for several years it will be the same type of weed that will have multiplied. If you keep changing you will also be giving chance for that crop to affect negatively the vigour of the weeds that do not favour growing side by side by that particular crop.

Zidana  
*And conclusively, what can you say about weed control in any crop including groundnut?*

Phewa  
In concluding I would say that it is very important that any farmer who really wants to get the best out of his yields has to undertake regular weed control throughout the growing period up to harvesting just as I’ve indicated, otherwise there is a lot of loss in yield when the fields are not properly taken care of despite use of other inputs which the farmer might access. *End of track.*
Weed control

Cotton

Cue:
Competition between cotton plants and weeds is both an important, and difficult problem to solve. Different weeds may affect the crop at different points in the season, although generally it is at the early stages in their development that cotton plants suffer most from weeds. Rotating cotton with, for example, a mixed crop of maize and cowpeas, and carrying out good soil preparation, both help to reduce weed problems, but traditional weed control methods such as hand hoeing are still essential in achieving a good harvest.

Hand hoeing is, however, a very labour intensive practice, and in some countries, such as Zambia, the effect of urban migration and HIV/AIDS has meant that labour is scarce. To address this situation, Zambia’s Conservation Farming Unit - known as the CFU - has developed some new tools that can help to make weeding a less laborious job. In our next report, Chris Kakunta speaks to Dr Watson Mwale of the Cotton Development Trust, an organisation which carries out research and training for cotton farmers, including use of Conservation farming methods. Chris began by asking Dr Mwale to describe the importance of weed control in cotton production.

IN: “Weeds are very devastating in…
OUT: …best way is attack it early.”
DUR’N 4’05”

BACK ANNOUNCEMENT:
Dr Watson Mwale of Zambia’s Cotton Development Trust.

Transcript

Mwale
Weeds are very devastating in all crops but specifically in cotton they can be as devastating as up to 50-60% in terms of crop yields. This is because weeds are a tough competitor, they compete for light, nutrition and moisture. So we need to put in mitigating factors. We need to prepare land early, we need to plant early, we need to start weeding very early. We need to put all measures that can see that the crop grows vigorously as quickly as possible. Because failure to do that, just imagine that the farmer is expecting one ton or 1000 kilograms but he or she ends up with only 400 or 500 kilograms. That is a total big loss.

Kakunta
Most of the farmers that grow this crop here in Southern Province are smallscale farmers. What methods exactly do they use to control these weeds?

Mwale
Most farmers, let me say, use hand hoe methods to control weeds. As you are aware that you need to weed in the cotton field maybe three or four times. So spraying is also expensive to buy herbicides. But that is part of what farmers should do. We also want to encourage them to use the lighter tools that can help them, like the modern weed wiper that has been manufactured by CFU.

Kakunta
For the sake of our listeners Dr Mwale, what do you exactly mean when you say CFU and weed wiper in particular?
Weed control

It is a very light machine with a cloth at the end and then a tube as long as about a metre or so where the weed chemicals can be put and then it just sprinkles out of the cloth and you wipe between the rows of the cotton crop. That helps a lot because it’s lighter to handle and its quick.

Now coming to the methods that the farmers actually use, hand hoeing, with the shortages of labour and the advent of HIV/AIDS, how are the farmers managing to weed for instance a hectare of cotton?

That is a very important question in fact it is not only for cotton but more in other crops. When I mentioned the weed wiper earlier on, it is such tools that can actually help from heavy tools to lighter tools, that the farmers can engage. And indeed even hoes, CFU has also designed some type of hoe, which has a good pivot and is light to handle, and we look forward that more innovative initiatives can come into manufacturing, labour-friendly or labour-saving devices.

And when I look around the Cotton Development Trust I see that a number of trials are actually based on conservation farming? And most farmers actually have been complaining that this is labour intensive in terms of weed control.

Well it is labour intensive in the sense that there is a lot of frequency of weeding, but there are more advantages in taking up conservation farming in terms of returns. But what I’d advise farmers is they should start combating weeds very early. Because you know that weeds over-winter, that is when they grow they bear seeds and seeds remain in the ground. So come the next season they will be the first to attack. So you must also be the first to start controlling them. Should you delay, the whole field will be infested by weeds and they can be overwhelming. So the base is early weed control. Once you do that then conservation farming, the advantages you plant early, you apply fertiliser targeted and you conserve moisture, the returns are high. But the weeds problem is big, the best way is attack it early. End of track.
Weed control

Sorghum

Cue:
Like maize, sorghum is a crop that is particularly vulnerable to weeds, because it grows slowly at first. When growing sorghum, farmers must be ready to weed it in good time, just three to four weeks after sowing. Late weeding can cause losses at harvest of 30% or more. As sorghum is a crop that is usually planted in rows, using mechanical weeder can be an effective and labour-saving weed control method. These may be either push-pull hand weeder, or animal drawn weeder. However, this mechanical weeding must be done carefully, and at the right time, otherwise it can cause breakage of stems or uprooting. But, as Busani Bafana found out when he spoke to crop specialist Casper Moyo, there are other ways of controlling weeds in sorghum.

IN: “Small-scale farmers in Zimbabwe …”
OUT: …the crop growth and the yield.”
DUR’N 2’58”

BACK ANNOUNCEMENT:
Casper Moyo advising sorghum farmers to weed as early as possible, to ensure good crop growth and yields.

Transcript
Bafana Small-scale farmers in Zimbabwe, Matabeleland South province are aware of the negative impact weeds can have on their crop yields if they are not controlled. Therefore many farmers take extension advice seriously and show innovation in blending western practices of weed control with cultural knowledge systems such as rogueing. Casper Moyo is a Crop Specialist based in Matabeleland South province. Mr Moyo what methods of weed control do farmers commonly use in controlling sorghum in Matabeleland?

Moyo There are various methods which include crop rotation or intercropping. That is they intercrop their sorghum together with a traditional crop like pumpkins and squashes, so that the squashes would be a spreading crop, they have the effect of smothering weeds. They also use ox-drawn cultivators for cultivating in the inter-row and come in with the hoes in the in-row spaces to look at finishing off all the weeds that would have grown. In some areas we have farmers who are not able to purchase these cultivators, they use these simple hand hoes but it is rather intensive.

Bafana Of the methods that you described how effective are they?

Moyo I would say most are fairly effective depending on the efficiency of the farmer. For example the use of intercropping; if the crop itself is well spaced it can easily smother the weeds early enough and if these other traditional crops like the pumpkins and the squashes have been given optimum time and fertiliser to grow they can easily smother the weeds. Then the use of the cultivators; this is also effective but the problem is that most of these are not properly set, and in some cases these inter-row spaces are much much wider than the recommended spaces and the plant population is not all that ideal, it is at times too low for the smothering effect.
**Bafana**

*How can farmers minimise the weed problems in sorghum?*

**Moyo**

They can minimise that by cultural practices like early planting and proper spacing so as to achieve optimum plant population at an early stage as well as timely cultivation before the weeds produce the seeds.

**Bafana**

*What are the key factors that farmers should remember about the methods that we have outlined? For example the optimum time they need to carry out the weed control in sorghum?*

**Moyo**

The factor that they ought to consider is that the weeding has to be done as early as possible, preferably before four weeks, 3-4 weeks they should come in so that weeds have the minimum effect as possible on the crop growth and the yield. *End of track.*
Weed control

Upland rice

Cue:
In upland areas of The Gambia, rice farmers traditionally plant their crop by broadcasting, or scattering the seed onto the fields. However, although being a quick method of planting, broadcasting creates problems once the crop has grown, as it is difficult to weed the randomly spaced plants except by hand pulling. Hence upland rice farmers in The Gambia are now being encouraged to plant their rice in rows, using where possible, animal drawn implements. These can save considerable time, and are more affordable for smallholder farmers than chemical means of weed control, as Mr. Abdulie Bojang, Head of The Gambia’s Agricultural Communication Unit recently explained to Ismaila Senghore. Ismaila began the interview by asking what basic rules should be emphasised when discussing control of weeds.

IN: “One, we emphasise timeliness …
OUT: …do the operation on time..”
DUR’N 3’46”

BACK ANNOUNCEMENT:
Mr. Bojang of The Gambia’s Agricultural Communication Unit encouraging upland rice farmers to take advantage of animal traction in weeding their crop.

Transcript
Bojang
One, we emphasise timeliness. If you don’t weed on time you will find it difficult to control your weeds and you may find that you spend a lot of time using whether even mechanical or even manual labour to control those weeds. So one important thing is timing of operations. Once you start your planting early, the likelihood is that you may weed early and once you weed early, the thing is you have given the crop the chance to grow vigorously and to be able to resist any attack either by weeds or by other pests that may come into the field.

Senghore
Now when it comes to specific recommendations what kind of weed control would you recommend for rice production in the Gambia?

Bojang
For rice production in the Gambia there are two specific control methods that we do recommend. One is the use of ox-drawn equipment to control weeds in the rice crop because quite a number of farmers, most of them do have this equipment. And if they plant the rice in rows particularly in the uplands they will be able to use that equipment to weed between the rows. This is very easy in the sense that, one, it saves the farmer the time that he spends uprooting weeds from his field; two, it is also easy for the farmer to apply fertiliser and then incorporate the fertiliser into the soil for efficient use by the crop. Thirdly it also helps the farmer to actually be able to control other pests in the field which is very very essential. Because if you not plant your crop in rows it will be very difficult to keep that field weed free. And we all know that other insect pests are harboured by weeds and if there are so many weeds in your field the likelihood is that the crop would also be highly susceptible to pest attack.

Senghore
Now apart from hand picking the weeds in the field and using hoes and animal traction, are there other methods of weed control in rice crops?
**Bojang** Yes another method of weed control in rice crop is the use of herbicide which could either be pre-emergence or post emergence herbicide. This technology has been widely used in the lowlands. The upland farmers are also trying to apply the technology whereby it will save them time, energy and also, to have time for other activities in other crops that they grow in the wet season. And actually the only disadvantage or the only bottleneck in herbicide application is the cost of herbicide. It is very expensive for most farmers to buy and then apply on their field. But it’s a technology which, when adopted, can save the farmer at least 40 days without weeding his field.

**Senghore** *In other words if you had to give advice to rice producers in other parts of the Third World maybe even similar conditions to The Gambia, you will tell them to go for the methods that they can afford?*

**Bojang** Yes this is very important. This is why we actually advise them to go for these animal drawn equipment because even if you don’t have the equipment yourself either your next door neighbour or maybe one of your relatives may have which can be hired or borrowed and then you can do the operation on time. *End of track.*
Weed control

**Sweet potato**

**Cue:**
Sweet potatoes have a lot of enemies. Pests and diseases can be extremely destructive, causing huge losses if not controlled. Weeds are not usually regarded as such a serious problem, although if allowed to grow unchecked, can reduce final harvests by more than half. One advantage sweet potatoes have over other root crops, such as yams and cassava, is that their stems and leaves spread quickly, shading the soil and preventing weed growth. The most important time for weeding, therefore, is early in the life of the crop, when the soil around the plants is bare. To find out more about when, and how to weed, Patrick Mphaka visited a crop research centre close to the city of Blantyre in Malawi, where new types, or cultivars of sweet potato are being developed.

**IN:**
“Sweet potato is increasingly becoming …
**OUT:**
…are acceptable to the end-users.”
**DUR’N**
5’05”

**BACK ANNOUNCEMENT:**
Mr. Thumbiko Mkandawire of Bvumbwe Agricultural Research Station in Malawi.

**Transcript**

*Mphaka*  
*Sweet potato is increasingly becoming an important crop in Malawi and the region. This is so because of its drought resistant characteristic in the face of the current unreliable rains which continuously affect the production of other crops such as maize. To revamp the growing of the crop, Bvumbwe Agricultural Research Station Root Crop Commodity Team has been doing some research on various Sweet Potato varieties. One of the important aspects of any crop is weed control. To find out how weeds can effectively be controlled in Sweet potatoes, I had a chat with Mr Thumbiko Mkandawire, an Agricultural Research Scientist of the Root Crop Commodity Team. I caught up with him in a plot of sweet potatoes.

*Thumbiko*  
In here we have got different varieties of sweet potato. Some are the released varieties, some are still under experimentation. Some are very promising compared to the local varieties.

*Mphaka*  
Could we focus on weed control, how do you control the weeds in here?

*Thumbiko*  
In here, normally once we have started irrigating the crops or using the rain fed, weeds start to emerge. Most of the times, weeds tend to grow faster than the clones. So in the first place we use the hoe, then later on we use the hand weeding because if we tend to use the hoe, we may end up cutting the vines hence in the end, we may predispose the vines to the disease-causing organisms. Hence we end up losing the varieties.

*Mphaka*  
What you have just said, is it something which the farmers do practise or is something which they have not been practising but it’s something which you tell them to be practising because of the advantages you have just outlined?
Farmers are very knowledgeable. If you go to their fields you will find that two to three weeks after planting, if they have observed that the weeds are growing faster than the desired crop, you will find that farmers will take a hoe and weed, and remove the weeds. Once the plant has developed fully, and it has started putting up some of the roots into the soil, the farmers normally they do not use a hoe. They use the hands because they are running away from predisposing the crop from the disease-causing organisms as well as the soil insects.

Now, what would you say is commonly practised: as you have done growing just sweet potatoes on a piece of land, or intercropping?

In other areas, the farmers do intercrop with other crops, but in other areas, the farmers they just grow one particular field with sweet potatoes as you know that in Malawi we have got a problem of land especially in the Southern Region. Therefore the farmers normally do portion a piece of land to a specific crop.

If you look at the two scenarios, which area becomes more problematic when it comes to weeds?

This one depends on how knowledgeable the farmer is. But in most cases in terms of labour use and minimisation of labour costs to the farmers, they tend to intercrop the sweet potato with other crops. But at times it might bring about competition for nutrients and other aspects, hence in the end, you may find that there might be a reduction in the yield in both crops. But if the crop can be grown in pure state, you find that yield returns tend to be higher than in the intercrop.

We have noticed that some of the farmers start growing their sweet potatoes towards the end of the rainy season, while others, at the same time as they are growing the maize. Now, if you look at the two methods, which one is correct, and which one would control the weeds much better?

The first one is a better approach in weed control management than the delayed one, because you will be able to control the weeds before they flower; you end up reducing their mechanism for multiplication in terms for seed production. And at the same time you may end up getting a lot of yield returns than if you delay in planting because even though the sweet potatoes are drought tolerant crops, but also they do require a lot of moisture for their growth and development so they should be able to put up a lot of bigger roots. But if they delay in planting, that means they will be losing some vegetative growth hence in the end they may end up having lower returns.

There is a lot of development nowadays and you can use chemicals to control weeds. How far have we gone in that area in Malawi?

As far as I know, we haven’t yet come up with that research because our research focuses on the smallholder farmers, and we know that smallholder farmers, most of them they are resource poor, and if you develop that technology, the rate of adoption will not be as high as expected. Therefore, our main focus of attention in terms of research development is towards developing technologies that will be easily adopted, and appropriate to the targeted group, in this case the smallholder farmers. That is why the main focus of our research in terms of root crop development in Malawi, is to
develop cultivars that are disease resistant to major diseases and pests, and also, developing the cultivars that tend to produce or give more yields, and at the same time, varieties that are acceptable to the end-users. *End of track.*
Weed control

Vegetables

Cue:
The growing of vegetables for sale in urban markets has attracted many farmers wanting to increase their income, and has also improved the access of urban populations to nutritious foods. But vegetable growing is a labour-intensive activity, and with rural to urban migration occurring in many countries, labour shortages in rural areas are common. How then should vegetable growers undertake traditionally labour-demanding tasks like weed control? Using herbicides is one option, but farmers who decide to use them must be sure they have a reliable source of advice on which ones to use and how to apply them. Using mulches made from plant remains such as straw can also be very effective. A covering of mulch spread around vegetable plants helps to prevent weed growth.

In our next report, David Mburu, a weed specialist based at the National Agricultural Research Labs in Kenya, explains to Eric Kadenge more about weed control in vegetable crops. He begins by describing how vegetable farming is developing in Kenya.

IN: “Vegetable farming has moved …
OUT: …be no weeds in the field.”
DUR’N 3’12”

BACK ANNOUNCEMENT:
Dr David Mburu stressing the importance of good land preparation for controlling weeds in vegetable crops.

Transcript
Mburu
Vegetable farming has moved from a traditional farming method to a cash crop method. The farmers are diversifying into crops such as cucumbers, garlic, onions, both red and white, tomatoes are being grown in a wide variety, French beans - these are some of the crops.

Kadenge
And having mentioned some of those horticultural crops, what are some of the methods of weed control that farmers are currently using in controlling the weeds that affect these crops, and how effective are they?

Mburu
A survey we carried in 1990 showed us that there were myriad of problems the farmers were encountering in production of vegetables in as far as weeds are concerned. Take for example the onion crop. The onion crop is a very lucrative crop in Kenya. It is very useful; it is used as a salad, Kenyans use it a lot in frying and the onion crop is a very problematic crop as far as weeds are concerned. Why? Because the onion crop is a poor competitor with weeds. It does not form a canopy and therefore for the onion you have to control weeds throughout the season. Unfortunately for onion if you do deep cultivation you damage the bulbs and the crop is damaged so you have no crop. So what we suggest for onion, the use of herbicides has been found to be very effective. So for onions we don’t encourage hand weeding because of damage to the bulbs.

For tomatoes Selco and the common name is Metribuzin is a product that is very effective and it is applied pre-emergence before transplanting the
tomatoes. For beans it's a good crop because it forms a canopy and it is able to suppress any other weed growth.

**Kadenge**  
And as a parting shot, what last word would you have for a farmer listening to this interview about this issue of weed control?

**Mburu**  
From the work that we have done we have advised farmers make sure you get certified seeds, such that you don’t have any weeds in the seeds - that is one. Two, they should never let weeds produce seeds so that they can reduce the seed bank in the soil. The other thing is during land preparation, you make sure that you have the land well prepared. Weed control starts with the seed bed preparation. If you prepare a good seed bed, you have started controlling weeds because vegetable crops are very sensitive to weed competition and they should be done such that for the next 2 to 3 weeks after planting or transplanting there should be no weeds in the field. *End of track.*