



# Africa Transformation Network

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## SACK GARDENS

Sack Garden – to grow crops with a limited space or with poor soil quality

We bought sacks here in Rwanda for 250 Rwf (\$.40 US). We actually bought dirt off some people digging a trench nearby for 250 Rwf per bag (4 bags) but had to go back and add compost and repack them. This is what we've found:

### Filling the bags:

- Compost: If needed, use compost. We tried doing a layering system at first (layer of dirt, layer of compost, layer of dirt, etc.) but found once we planted the seeds, many were “burnt” by being planted in the compost layer when we planted the seeds in the sides of the bag. The best method is to mix the dirt and compost together and then fill the bag.
- Watering: Irrigation is key to the sack garden. It is important to make sure the bottom and sides of the bag are getting plenty of water.
  - Rocks: The first sack we did, we used rocks for irrigation. This is the cheapest method to use. We stuffed the bag about a foot deep and then, in the center, formed a cylindrical pile of rocks that went all the way to the top. As we built this irrigation system, we stuffed the sides with dirt/compost. With our first bag, we have not been very successful in using rocks. As picture #1 shows below, water is not getting to the bottom of the bag as hoped.
  - Bottles/PVC pipe: We next tried using bottles/pipe that would extend to the bottom of the bag. PVC pipe was the easiest to use but expensive for locals. We drilled holes in the sides of the tube, fewer towards the bottom and more at the top. We wanted to make sure water was filling the sides and not just all going to the bottom. We found a lid that would cover the bottom of the PVC to help slow irrigation. We also used water bottles and connected three or four together (see picture #3 below). This method can be free, too. We drilled holes in them also. Water is dispersing throughout the entire bag with this method.
- Supports: It is easy for these bags to fall over and we even had one do so. The easiest method is to buy 1½ meters of rebar and to pound this into the ground as your support. Since this is expensive for locals, we used sticks we cut from the forest as well. We set these posts in the ground about a foot deep (see picture #2). We've seen people use four posts but we only used three on each bag. We then used a rope around the side to hold the sticks and bags together. With the rebar, we used only two and then pulled the tops together and tied them to hold the bag in place (see picture #4).

- Filling: Stuffing the bag completely full with dirt/compost is also a key trick. It is best to fill and pack your dirt around your irrigation system slowly and deliberately. Our first bag, picture #4, shows that we didn't do too well our first time, but picture #2 shows major improvements! Pack the bag starting from the bottom and slowly work your way up. We started with about a foot of dirt packed in the bottom of the bag and then set the irrigation system on this base. As you pack, pack the dirt in by hand and pour in water to get all the air out. Lift up on the sides of the bag continually to ensure it stands tall and all the gaps are being filled with dirt. Once it is packed, give the bag another week to settle. We started pouring water into the irrigation system and around the sides to help it settle faster. We added dirt at least two more times to completely pack it. Try to pack it to the very top because it will still settle more over time.



Planting: Our bags are 60 inches in diameter once filled. About 6 inches from the top, we put a ring of 10 holes, 6 inches apart. We then moved down about 6 inches and put another ring of 10 holes. We tried to stagger our holes so they wouldn't line up vertically. See picture #2 above. We put in a total of 6 rings, thus 60 holes. We didn't poke holes until we were ready to plant. It would have gotten difficult to know which hole had seeds and which didn't if we put all our holes in at once! We cut an upside down "T" shape and stuffed the corners of the "T" underneath itself forming a triangle. We then planted the seeds just below the bottom of the triangle. We didn't want our irrigation water to wash our seed out so we used the bag to hold the seed in place. And that is it! The seeds know to grow out the bag. We've helped a few leaves to poke out the hole but the seeds know what to do. We also plant crops at the top which helps keep the soil in place and is great space for larger plants.

Plants Grown: We are growing the following:

- Very successful: chard (spinach), green onions, green peppers, mustard greens, and lettuce
- We are also trying: brussel sprouts, broccoli, and jalapenos, cilantro, jalapenos, and celery
  - Remember not to grow anything whose roots aren't too large! You don't want to grow large onions or potatoes because you'll rip your bag open in order to get your food out! We think it'll be pretty easy to harvest and use the bags again.

**Contact Heath Amos for more information @ [heath.amos@atn-rwanda.org](mailto:heath.amos@atn-rwanda.org).**