



Photos by Patrick Mangan

Start Your 2020 Victory Garden!

Section 3: Garden Beds, Raised Beds, and Container Gardens

A practical guide on the ins and outs of developing a backyard garden plot to grow your own fresh vegetables for a local, sustainable, secure food supply in the times we are having.

Developed by: Patrick Mangan
MSU Ravalli County Extension Agent



WELCOME BACK!

Table of Contents: Where we have been and where are going...

Previously:

- Section 1: Bitterroot Valley Climate data for gardening. Site selection for a garden, and keeping the deer out.
- Section 2: Garden soils, taking soil samples.

Currently:

- Section 3: Garden beds, raised beds, and container gardening.

Coming Soon:

- Section 4: Soil amendments and preparing the garden. What a soil test analysis tells you. What to grow?
- Section 5: Seeding and transplanting plants when the time is right.
- Section 6: Watering and weed management in the garden.
- Section 7: What could possibly go wrong? Disease, insects, and other things to keep a watch out for. IPM management practices.
- Section 8: Harvest time! Canning and storage
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Beds and Containers- where to grow

We will discuss considerations for:

- Gardening in native soil and in-ground bed
- Building and using raised beds
- Patio container gardening



Photo source: Alabama Extension Service
<https://www.aces.edu/blog/topics/lawn-garden/alabama-gardening-calendar/>

Choices about design, size, what you have already, and how much you want.

There are a lot of considerations that go into the type of growing environment in your garden. From the native soil you have on your place, to the amount of money you want to spend to build out your garden, to the space you have available, to the aesthetics you want to have, it is all part of the mix.

In this unit we will compare and contrast growing in native soil on site, building raised beds, and growing small gardens in containers. There's a lot to think about.



Before we talk about each type...

- A couple of things to consider right off the bat!
 - If you're facing a real space constraint, or don't have a yard at all, then containers may be the way to go. Space considerations may play a big role in your garden.
 - Cost might also play a role; costs money to buy or build a garden structure.
 - What types of plants do you want to grow? Some will do good in containers, and other won't. We will look a little bit at some of the characteristics of plants to see if they might be suitable for containers especially. Some plants really don't like container environments.
 - Any growing space is only as good as its soil and growing medium, so pay attention to that, no matter what place you choose.

Growing in Your Native Soil and In-Ground Beds

- You have a plot for a garden, full of native soil. You can use that to build a fruitful, productive garden space for vegetables.
- Here are some thoughts about growing in the native soil beds.



Native soil in-ground beds: Pros and Cons

Positive Attributes:

- You have the soil there, and you don't have to spend money to build or develop more elaborate beds.
- You can easily build upon the whole soil ecosystem and microbiological community with amendments and soil management.
- Not constrained by size as much as other forms.
- Easier to practice some of the sustainable or organic models like no-till, or lasagna gardening.
- Easy to reconfigure from year to year.
- Typically store and conserve water better than raised beds or containers.
- Cheap and easy to get started!

Challenges and Things to Consider:

- If you have soil texture challenges, like a lot of sand, or too much clay in your native soil, you have to work with what you got in that place.
- The ground soils will heat up slower in the spring than raised beds and containers.
- You can face weed pressure from weed seed in the soil seed bank.
- Walking pressure and compaction in walkways between rows can be a challenge.

Native soil in-ground beds: Getting Started

- If you're starting out with a brand new in-ground garden bed, then let's get those beds prepared.
 1. Removing vegetation that is currently there, like grasses or sod, is really important. Pay special attention to rhizomatous spreading weedy species like Canada thistle and Quack grass, which can quickly rise up and take over a new garden bed
 1. There are chemical options for site preparation, using a non-selective herbicide like Glyphosate to kill off all existing vegetation. Or, you can dig and remove sod and grasses by hand. All depends on what your values and goals are.



Native soil in-ground beds: Getting Started

- To till, or not to till? That is the question...
 - Tilling can be tough on garden soil, especially over the long term. But it may be a tool you use to get started with the first year beds.
 - If you're going to till in the first season to get the bed prepped, think about a couple of things:
 - Do it when the soil is dry, not overly moist.
 - Use the tillage machine sparingly, don't over-work the soil.
 - Consider using a shovel and garden fork to turn the surface instead of a mechanized tiller. You can get some great results, and not impact soil health in the same ways.

We will talk more about tillage or not in the next section, Section 4, when we talk about amending soils.



Raised Beds

- Another popular possibility for garden spaces is to build and outfit raised garden beds. They have several benefits in the gardening world.



Raised Beds: Pros and Cons

Positive Attributes:

- Usually greatly reduced weed pressures compared to in-ground beds.
- Warm up earlier in the spring than in-ground beds.
- Can easily be integrated into cold frames or other season extending covers.
- Allow for mulched/ vegetative walkways between beds, minimizing soil compaction concerns.
- Can be taller or “raised” up off to the ground to support mobility impaired gardeners and those who do not want to bend over as much any longer.
- Some real aesthetic benefits, they can look very appealing

Challenges and Things to Consider:

- Be can be expensive to build, and will have some maintenance costs associated with them.
- You will need to bring in a growing medium to fill the raised beds. It can also be expensive, and you can import some challenges into your beds with the soil and growing medium you choose, most notably weed seeds, soil texture challenges, and lack of soil nutrients.
- Locks you into more of a structure, the raised bed will be in the place you put it and at the size you make it until you move it, and that will take just as much time as it took you to set it up the first time.

Raised Beds: wood building material choices

- Wood beds are popular and the materials are readily available
 - Cedar wood boards are ideal and rot resistant, they contain natural rot-resistant oils and components.
 - Fir is adequate, not as rot resistant as cedar, also cheaper and more available in western Montana.
 - Pine boards are more prone to rot over a short duration, but also a possibility, and widely available.
 - * Avoid pressure treated or chemical treated wood, untreated wood is best.



Old recycled fence boards made nice raised garden bed. Some metal cattle mineral tubs work as a container.

Raised Beds: non-wood possibilities

- It is possible to use non-wood materials for raised beds, all depends on the availability of materials and supplies.
- Things to think about:
 - Will the material degrade over time, leach anything into the soil?
 - Will water drainage be successful all the way through the soil profile within the bed?
 - Can the structural integrity of the bed hold the weight and outward pressure the soil will put on it?
 - Will the outer surface of the raised bed be a heat-absorbing surface that might overheat or cook the plant roots?
 - Do I know what the container was used for prior to me considering it as a garden bed? Is there some residues in it that I won't want in my soil or food?



Image source: University of California Extension
http://solanomg.ucanr.edu/newsletters/Seeds_for_Thought64596.pdf

Raised Beds: Design thoughts

- A lot of raised beds building guides suggest a 4 feet wide, 8 feet long design. For two reasons :
 - dimensional lumber comes in those easy measurements for building without waste.
 - AND, at 4 feet wide a gardener can reach into the center of each bed (2 feet on one side, 2 feet on the other) without having to step into the bed, compacting the soil. So make your bed narrow enough to reach across successfully.
 - A length of greater than 8 feet is a definite possibility, but the side boards will want structural support with bracing so they don't bow outward under the weight of wet soil.
 - They can be as tall as you want them ultimately for access and looks. 6-18 inches tall is popular. They can be even taller.
- Be sure to leave enough walking path space between beds so you can navigate hoses and a wheelbarrow easily once the garden is in full swing.



Raised Beds: Soil growing medium

- When you build a raised bed, you most likely need to fill with a growing media to grow in, and you'll probably get that some somewhere off of your site.
- Many garden centers sell different soil growing blends, so go talk to a local nursery, see what is available in your area and what they have in stock.
- A 50/50 native soil and composted organics blend can be popular, and gives a good growing combination of soil and compost.
 - The soil mix will only be as good as the soil it started with, and the compost will only be as good as the compost used, so get your hands in there to see what the mix is all about.



Image source: University of Maryland Extension
<https://extension.umd.edu/hgic/topics/soil-fill-raised-beds>

Raised Beds: Soil growing medium= Continued

- Here are some additional thoughts for finding a soil growing mix for your raised bed.
 - A 50/50 blend of soil composted material can be a good bet.
 - Make sure the compost is fully composted before it is mixed in. If not, the composting process will tie up nutrients as it continues to finish.
 - Think about water drainage in the soil mix. You won't want it to hold onto water so well that it waterlogs the beds, but you also don't want it to drain too quickly and not retain water. Grab a handful of it, and get it wet, see how it does when moist.
 - Some blends, particularly with composted manure, can be a little nutrient rich and "hot" when first mixed. It might need to rest through a fall and will be ready for spring planting the next year.
 - A pure compost-only soil can cause some challenges in nutrient management. Having some soil in the mix helps hold onto nutrients and can buffer against change. With compost-only, you may have to be on-the-spot more with management of nutrients and micronutrients to manage the changing nature of the soilless material.
- Something to think about:
 - A raised bed that is 4 feet wide, 8 feet long, and 18 inches tall = 48 cubic feet of space. A yard of soil material is equal to 27 cubic feet of material, so each bed will take about 1 and a half truck loads of growing medium.

Pots and Small Containers

- You can grow a lot of food in small patio containers as well, and it gives you some opportunities to utilize small spaces, and non-traditional types of growing containers.



Image source: Kansas State University Extension
<https://www.johnson.k-state.edu/lawn-garden/agent-articles/vegetables/growing-vegetables-in-containers.html>

Pots and Small Containers: Considerations

- There a wide variety of options, so some things to think about:
 - The sides of a pot or container can heat up in direct sun, and burn the roots inside the pot. It is possible to line the inside of pots with something like cardboard, or newspaper to create an insulation layer. Also possible to wrap the outside with something that'll keep the pots from heating up. Maybe avoid using, or cover the outside of black pots, which will absorb a lot of sun.
 - Having good drainage in pots is essential. With the smaller vessel, it works just fine to buy some pre-mix potting soil mix, with some vermiculite in it. Check out your local garden supply store, they have lots of pre-mixed options.
 - Garden vegetable plants will use a lot of nutrients while growing in pots, and don't have a lot of soil to supply them, so you'll need to have a fertility plan throughout the summer to continue to supply needed nutrients.



Image source: Cornell Extension
<http://cceonondaga.org/events/2019/06/20/container-gardening>

Pots and Containers: Right plant, right size

- Some plants will do better than others when in potted environments. Think about the rooting depth of the plants you are growing, and how much soil and how big of a pot that plant will want in order to thrive.
 - Small leafy greens with fibrous roots, like lettuce and spinach can get away with a small pot, maybe up to 3 gallon size.
 - Larger vegetables, like squash, green beans and onions may want a 10 gallon size pot.
 - Tomatoes, peppers, and vining squash may want really large pots, larger than 10 gallons.

Pots and Containers: Water management

- Vegetable plants in pots are going to be water hogs, especially toward the middle of the hot summer. Be prepared to get out there and water them every day. You might even need to water them a couple of times a day as they get into full production. You don't want to cause water stress with your vegetables.
- Grow in a well drained pot so the vegetable's roots don't get waterlogged.



Pots and Containers: Finding the right plant

Do some hunting around for seeds and cultivars of plants that will do better in potted environments. Adapt to growing in pots, and choose cultivars to suit. Seed catalogues, seed packets, and transplants will often say “good for containers” if they are a more compact plant. Ask someone at the nursery for some ideas of good container plants.

- Maybe a cherry tomato plant, instead of a full sized tomato plant in a potted environment.
- Maybe some dwarf or bush cultivars, instead of full size.

HAVE FUN WITH IT!

- I grow in the ground
- I grow in old cattle mineral tubs
- I used to have an old bathtub as a garden bed
- I've seen people grow in wheelbarrows.
- Choose your garden bed style, find some good growing mix to put into it, choose the appropriate plants, and be ready to plant it out this spring (we aren't there yet... but soon).



Next Up!

- In Section 4 of the Victory Garden Guide we will revisit the soil test in your garden.
 - We will talk about interpreting the soil test
 - We will talk about soil amendment strategies
 - And we will talk about starting down the plant choice pathway



Questions?

- If you have thoughts or questions, feel free to reach out to your local extension agent.

Or, give me a call

Patrick Mangan

MSU Ravalli County Extension Agent

Patrick.mangan@montana.edu

406-375-6607



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