



HEAVY 16 RECIPE - ZONE

Recirculating

- Change reservoir every 7 days
- Keep pH between 5.8 - 6.1. Keep Water Temp at 66-68 F
- Because Heavy 16 is made for Reverse Osmosis Water - no need to add any Magical.
- Only add Additives whenever you change out reservoir
- Add Nutrient up to Desired TDS level
- Always Adjust pH last - No matter what is put into the res. solution - even water. . Adjust pH last!

Reservoir Maintenance

- Add all Additives first (follow directions below)
 - Zone** - Root Zone and Reservoir Sterilizing solution - 1tsp. per 2.5Gallons of Water.
 - Big Bud and Overdrive** - 1/2-1 tsp. per Gal. - use as directed from recipe sheet. Never both at same time.
 - Liquid Karma** - 1-4 tsp. per Gallon. (5-15mL per Gallon)
 - Budswel** - Organic Worm Castings and Bat Guanos- 1-2 TableSpoon per Gallon. (15-30mL/Gallon)
 - Bud Candy**- (sugars sweeten fruit) 1-3 tsp. per Gallon (Esters increase oil/sugar/resin.) (5-15mL/Gallon)
 - Purple Maxx** - Follow Special Instructions - 1tsp. / Gal. for weeks 7 and 8. (5mL/Gallon) **Foliar**-2ml/Gal.
 - Final Phase** - 2tsp. per Gallon. (10mL/Gallon)
- Now add your nutrient to the desired TDS (ppm). *If the concentration is ever too high - dilute with water.*
- Check and adjust pH.
- Make sure to have air stones in reservoir. O2 is more important than Additives. More aeration is better.
- Make sure water temp is 66-68 deg. F. (More oxygen is available at cooler temperatures.)
- Note: There are a lot of additives. You don't need to use them all. They each have a specific purpose.
- Note: Spray with **Purple Maxx** as a light dusting throughout the Bloom Phase (esp in last 2 weeks) at the rate of 1tsp./Quart. This will ensure massive oil / sugar content and can help change the color if it is present in the genetics of the plant. Also make sure for final 2 weeks to add to reservoir at rate of 1tsp./Gal.

Other Maintenance

- Make sure you have great drainage in trays/pots. No roots sitting in standing water!
- *Make sure you have great drainage in trays/pots. No roots sitting in standing water!*
- Additives should not equal more than 33% of your overall TDS (ppms.) Ex. 1200 ppms - Additives should not be more than 400 ppms at the most. Additives are anything except Main nutrient 2 Part.
- General Rule: A healthy crop will bring water level & TDS down every day
- Check for Nutrient burn. If you see leaf tips yellow/browning or burning on edges of leaves, lower your Overall TDS values. Do not let plants get necrotic spotting in the middle of leaves. If you see any serious burning - FLUSH reservoir and re-do nutrients at 200 ppm lower than before.
- Always look for signs of overwatering - Plants get heavy saggy look and feel to them. Adjust water timer.
- Any time you do a FLUSH (and this is only in Mediums such as Rockwool or Coco Based) check to see what your "Run-Off" pH and (ppms) come out at. A healthy medium will have the same pH & ppms as the water you are putting in. An example- during a FLUSH with RO water is a pH of 5.8 and a ppm of 25-75. We want it to match within .2pH and 100ppms. If after FLUSHING your ppms are still high- FLUSH more! If pH is off - lower or raise pH by the difference and FLUSH again. Ex. pH Going in is 5.8-Coming out is 6.5 - Flush at around 5.0. Test pH again. Repeat as necessary. Call with Questions.

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Seedlings or Cuttings:

Use **Heavy 16 Grow A+B** (for main nutrient)

If starting from seed you will want to build your TDS up. You will start at 300-400 ppms after the seed cracks. To crack the seed soak in warm water between a damp paper-towel for a couple of days. Once cracked, move to **Ready Grow** cube. You will bring TDS up 200 or so ppms per week until at 1000-1200ppms for Bloom.

If Using Rooted Cuttings, you will want to start your clones at the same TDS that the parents were kept at. If you do not know what that level was, a safe place to start is 800 - 1000 ppms. You will be looking for new growth on the tops of the plant before we can safely put them into the vegetative stage.

Note: One of the major problems people have with cuttings is that they throw them under too intense of a light source. Clones are coming from an area with a low intensity of light and extremely humid conditions. Make sure your HID light is high at first and lower it 6" a day until desired height is reached. Also spray plants occasionally with **Liquid Karma**, and combined with a wetting agent like **Wet Betty**.

Vegetative Stage:

Use **Heavy 16 Grow A + B** Nutrient

If starting from seed - you will raise your ppms up to 1000-1200 ppms throughout this phase. You will want to start at 300-400 ppms. For the first 2 weeks you will coddle your plants and tend to their every desire. You will then raise the ppms 200 per week. Look to see if there is any damage at all to their leaves. If yes, lower the TDS! Steadily raise ppms every week until you get to 1000-1200 ppms. You should be able to follow the Bloom chart/map in this hand-out. You may have to start week 1 at 1100 instead of 1200. If this is the case, raise ppms 100 every week until you get to 1500 in week 5 (instead of week 4.)

If starting from Rooted Clone - You will want to keep your plants in the 1000 ppm - 1200 ppm range for this entire cycle. No Higher levels needed. *Yes. You can start at 800 -1000ppms! Because thats where parent was.* Before adding Nutrient.

Add Each of your desired additives.

Now add Nutrient to desired TDS (ppms).

You will want to maintain your **pH** at **5.8 - 6.1**.

Here is an example of a 3 week vegetative schedule (starting from cuttings/clones of your favorite plant(s))

Week 1 - TDS 800 (Fresh Reservoir) (**Liquid Karma** 1tsp./Gal., **Bud Candy**1tsp./Gal.)

Connect Air Stones to Air Pump and submersestones in Water. Make Sure they work.

Check Timer for Pump, and set appropriate on/off times; depending on system type and grow media used.

Make Sure Tray(s) / Pots Drain.

Start Your Reservoir by adding **Reverse Osmosis (RO) water**.

Next Add Additives. (**Zone, Liquid Karma, and Bud Candy**).

Now add **Heavy 16 A+B Grow** - bring TDS to 800 ppms. Adjust daily- keep at 800 ppms all week.

Adjust pH to 5.8-6.1 (You will have to play with **pH** - between **5.8-6.1**. Dial it in over course of week 1.)

Check water temp after 1-2 days Make sure it is bewteen 66-68 deg. F. This is important to get right Now!

Week 2 - TDS 950 (Same steps as Week 1 - New TDS) (**Liquid Karma** 1tsp./Gal., **Bud Candy** 1tsp./Gal.)

Fill and Dose Reservoir. Make sure Reservoir temperature is between 66-68 deg. F.

Check Timer for Pump, and set appropriate on/off times; depending on system type and grow media used.

Make Sure Tray(s) / Pots Drain.

Next Add Additives. (**Zone, Liquid Karma, and Bud Candy**).

Now add **Heavy 16 A+B Grow** and bring TDS up to 950 ppms.

Adjust **pH** to **5.8-6.1** (keep pH at level you found to be right last week.)

Check water temp after 1-2 days Make sure it is bewteen 66-68 deg. F. This is important to get right Now!

Now is the time to figure out and dial in your mediums water needs. (Aside from Grow Rocks / Hydroton) you will want to make sure that your given medium (Coco/ Soiless / Rockwool) goes from WET to BARELY MOIST before you water again. This is critical to get right now.

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Week 3 - TDS 1100 (**Liquid Karma** 1tsp./Gal., **Bud Candy**1tsp./Gal.)

Start Your Reservoir by adding **RO water** Check water temp - make sure it is between 66-68 deg. F.
Connect Air Stones to Air Pump and submerge Stones (Not Pump!) in Water, Making Sure Stones work.
Next Add Additives. (**Zone, Liquid Karma, Bud Candy.**)

Now add **Heavy 16 A+B Grow** - bring TDS to 1100 ppms. Adjust daily - keep at 1100 ppms all week.
Adjust **pH** to **5.8-6.1** (You will have to play with pH - between 5.8-6.1. Dial it in over course of week.)
Make Sure Tray(s) / Pots are still Draining. Make sure you **CONNECT** Irrigation PUMP to timer and it is ON!

Fruit/Flower Stage:

Use **Sensi Bloom A + B Nutrient** Start w/ **pH 5.8.**

Add at different times and rates - **Zone** (1tsp./2.5Gal,) **BigBud** (2tsp./Gal.) **OverDrive** (2/tsp./Gal.) **Liquid Karma** (1-4tsp. per Gallon,) **Budswel** (1-2 TblSpn./Gal,) **Bud Candy**(1 - 3 tsp. per Gallon,).

Enter Week 1 of Bloom stage with a TDS of 1200 ppms. You will be raising your ppms 150 per week.

Week 2 TDS - 1300 ppms - **Bud Candy** 1tsp./Gal., **Liquid Karma** 1tsp./Gal., **BigBud** - 1tsp./Gal.

Week 3 TDS - 1400 ppms - **pH 5.8 Budswel** - 1 TblSpn. (15ml/Gal,) Raise **Liquid Karma** 2tsp./Gal.

Week 4 TDS - 1500 ppms - **pH 5.8 Bud Candy** to 2tsp./Gal, **Big Bud, Budswel & Liquid Karma** don't change.

Week 5 TDS - 1600 ppms - Raise **Liquid Karma** to 3 tsp./Gal

Week 6 TDS - 1600 ppms - **pH 5.7** Raise **Budswel** -2TblSpns./Gal. (30mL/Gal.) Raise **Bud Candy** to 3tsp./Gal.

Stop using **BigBud** Start **OverDrive** at 1/2-1 tsp./Gal.

Week 7 TDS - 1000 ppms - **pH 5.6** Start **Purple Maxx** in Reservoir. Raise **Liquid Karma** to 4tsp./Gal.

Week 8 TDS - 0-300 ppms - **FLUSH** anywhere from 4-7 days to end of Harvest - Look below for instructions.

Note: You will be adding **Budswel, Bud Candy** and **Liquid Karma** for larger fruit / flowers throughout the Bloom phase. Increase the dosage of these additives throughout. For example, if the range of use of these additives is 1-2tsp. then start at 1tsp. and get to 2 tsp. by week 5 of Bloom. If you ever see signs of stress then reduce the strength of these additives immediately.

You will harvest anywhere from wks. 7-10 of Bloom. At that stage you will need to Flush. We suggest **Final Phase**. You can see that the general trend here is that you will be raising your TDS up from 1200 at week 1 all the way up to 1600 ppms by the 6th week bloom. (Note that some plants need more than 8 weeks to create fruits/flowers - up to 10 weeks. Adjust accordingly.)

Note: If at any point you see rust colored spotting, leaf tip burn, discoloration around leaf edges, yellowing of newer leaves, etc. check pH, check roots, lower TDS by 200-300. If it gets worse, drain / Flush Reservoir.

Working with Organics is a tricky endeavor. It can be very rewarding in the long run because your fruit/flowers will be more aromatic, have more flavor, and generally look very beautiful. That is why we are using this many additives in the reservoir. Each one is used for a specific duration, at a specific time to produce a specific effect. Pay close attention to your plants. And again --- If signs of nutrient burn are observed, lower TDS.

Here is an example of an eight-week bloom schedule: (For best results, transfer this onto a real calendar!)

FLUSH - Use Final Phase. Make sure water comes out clean. "From Dirty to Clean"

Week 1 - TDS 1200 (**pH shifts to 5.8.**) (**Zone** 1tsp./2.5 Gal., **Bud Candy** 1tsp./Gal., **Liquid Karma** 1tsp./Gal.).

Drain and Refill Reservoir using **RO water**.

Check water temp after 1 day. Make sure it is between 66-68 deg. F.

Connect Air Stones to Air Pump and submerge Stones (Not Pump!) in Water, Making Sure Stones work.

Make sure pump is plugged in and works.

Add Additives. (**Zone, Liquid Karma, Bud Candy.**)

Now add **Heavy 16 Bloom A + B** - bring TDS to 1200 ppms.

Adjust **pH** to **5.8** (Most Plants will now be at lower **pH like 5.8**) (But plants are specific, so experiment.)

Make sure Tray(s) are draining completely. Make sure you **CONNECT** Irrigation PUMP to timer and it is ON!

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Week 2 - TDS 1300 (Start adding **BigBud** at 1tsp./Gal.) (All other additives stay the same.)

Fill Reservoir w/ **RO water**.

Make sure Reservoir temperature is between 66-68 deg. F.

Add Additives. (**Zone, Liquid Karma, Bud Candy, BigBud.**)

Now add **Heavy 16 Bloom A+B** and bring TDS up to 1300

Adjust pH to **5.8**.

Keep levels of pH and TDS correct. Make sure you have good drainage!

Week 3 - TDS 1400 (Begin adding **Budswel** at 1Tablespoon/Gal. (*15ml/Gal.*) Increase **Liquid Karma** to 2tsp./Gal.)

Drain and Refill Reservoir using **RO water**.

Check water temp after 1-2 days. Make sure it is 66-68 deg. F.

Connect Air Stones to Air Pump and submerge Stones (Not Pump!) in Water. Make Sure Stones work.

Add Additives. (**Zone, Liquid Karma, Bud Candy, BigBud, BudSwel.**)

Now add **Heavy 16 Bloom A+B**. Bringing TDS to 1400 ppms.

Adjust **pH to 5.8**.

Make Sure Roots are still healthy.

Make sure you **CONNECT** Irrigation PUMP to timer and it is **ON!** *Common mistake after draining reservoir.*

You should see good mycorrhizae growth from Piranha. White fuzzy healthy roots.

A critical stage of development. Organics Alive should be in Full Bloom. **Roots Excel** keeping the roots healthy.

Week 4 - TDS 1500 (Increase **Bud Candy** to 2 tsp./Gal.)

Fill Reservoir w/**RO Water**.

Make sure Reservoir temperature is 66-68 deg. F.

Add Additives. (**Zone, Liquid Karma, Bud Candy, BigBud, BudSwel.**)

Now add **Heavy 16 Bloom A+B** and bring TDS up to 1500 ppms.

Adjust pH to **5.8**.

Keep levels of pH and TDS correct.

Make sure you have good drainage! Roots can die easily from suffocation at this stage.

FLUSH - Use Final Phase. Make sure water comes out clean. "From Dirty to Clean"

Week 5 - TDS 1600 (Raise **Liquid Karma** to 3tsp./Gal. Last week of **Big Bud.**)

Start Your Reservoir by adding **RO water**.

Add Additives. (**Zone, Liquid Karma, Bud Candy, BigBud, BudSwel.**)

Now add **Heavy 16 Bloom A+B** - bring TDS to 1600 ppm.

Adjust **pH to 5.8**.

Make sure Irrigation PUMP is connected to timer and that it is **ON!** Make sure Tray(s) are draining completely.

Make Sure Roots are still healthy. Almost at the home stretch!

Check water temp after 1-2 days. Make sure it is 66-68 deg. F.

Week 6 - TDS 1600 - (Raise **Budswell** to 2TableSpn/Gal (*30ml/Gal.*) **Bud Candy** goes up to 3tsp./Gal.)

(Stop BigBud. Use **OverDrive** at 1/2 -1 tsp./Gal.)

Fill Reservoir w/ **RO water**. Make sure Reservoir temperature is between 66-68 deg. F.

Add Additives. (**Zone, Liquid Karma, Bud Candy, Overdrive, BudSwel.**)

Check Water temp - it should be 66-68 deg. F.

Now add **Heavy 16 Bloom A+B** - bring TDS to 1600 ppm.

Adjust **pH to 5.7**. (This is down from last week where it was 5.8.)

No **BigBud** Anymore!!! Only **OverDrive!!!**

At this point fruit or flowers should be filling in rapidly and ripening has begun or is beginning.

Roots may be slightly yellow or cream colored on mature plants. Lower leaves can Yellow from a lack of Nitrogen.

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Look for signs of Nutrient Burn, Yellowing, Rust Color Spotting, Leaf tip burn. Only small amounts of this are acceptable at this stage. If you notice heavy damage, lower TDS 200 ppms, If damage continues, Flush and reduce TDS by 400ppms and lower strength of Additives - **Bud Candy, Budswel, OverDrive, Liquid Karma.**

Week 7 - TDS 1000 (Lower pH to **5.6** - Raise **Liquid Karma** to 4tsp./Gal. **PurpleMaxx** to 1tsp./Gal.)

Start Your Reservoir by adding **RO water**

Connect Air Stones to Air Pump and submerge Stones (Not Pump!) in Water, Make Sure Stones work.

Add Additives. (**Zone, Liquid Karma, Bud Candy, OverDrive, BudSwel.**)

Now add **Heavy 16 Bloom A+B-** bring TDS to 1000 ppm.

Adjust **pH to 5.6.**

Make sure Tray(s) and Pot(s) are draining completely.

Make Sure Roots are still healthy. If not, it should not matter that much, but try and do better NEXT time.

Make sure Irrigation PUMP is still connected to timer and it is ON!

Check water temp after 1-2 days. Make sure it is between 66-68 deg. F.

FLUSH - Use Final Phase. Make sure water comes out clean. "From Dirty to Clean"

Week 8 - (**FLUSH!**) - Lower Res Temp to 50 deg. F. - NO NUTRIENTS!

Fill Reservoir w/ **RO water.** Make sure Reservoir temperature is as close to 50 deg. F.

Add Additives. (**Bud Candy, FINAL PHASE, PurpleMaxx.**)

Adjust **pH to 5.6**

FLUSH --- either at the beginning of this week and ignore the above. Or after 3 days Flush for final 4 days. Read Flushing notes below.

Final Flushing:

To flush, drain reservoir 4-7 days from finish. Fill with fresh water. Add **Final Phase** at a rate of 2tsp. per Gallon. Add Nutrient. Raise TDS to 500 ppms. Run for 1-2 days. Drain Reservoir. Repeat process (add Final Phase) and run until fruit is ripe. One a day until last flush which runs for 2 days.

General Notes:

If at any point you see evidence of disease (persistent major pH shift, foamy / slimy-ness in the reservoir, large scale root death.)You will need to clean and sterilize the reservoir and trays. Flush out the pots and trays with a copious amount of water. Bleach as much of the hydro system as possible (including tubing, pump, reservoir and trays.) Bleach will kill diseases, but is also toxic to plants, so be sure to rinse well before reusing. Refill reservoir and re-dose. Be prepared to Flush the system every other day until the problem is solved.

It is also a good idea to wash out your reservoir monthly. On any one of the bi-weekly drains you can take it out and bleach it down. Then rinse it well to remove the bleach residue. When clean restart as normal.

Again, look for any signs of stress. Anything at all. If you see any discoloration, or any damage to the roots. Call us! Or, come in and talk with us about it! *We can help.* We can help - If its not too late!

Disclaimer

Individual results may vary. We are in no way responsible for your results. Environmental Conditions can change any end result. We are not responsible for other people's mistakes. This is a generalized recipe for tomatoes and cucumbers in particular. Use a TDS meter. Maintain pH. Maintain a Healthy Reservoir Temperature. Use RO water. Change Out Reservoir. Call us with problems. This recipe is intended for legal use only.



