

GROWERTALKS

Features

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Measure to Improve

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Cultivate'21 was not only a wonderful opportunity for our industry to get back to in-person events, friendships and networking, but also featured a strong educational component covering just about every aspect of horticulture. One session that was well-attended and well-reviewed because of its far-reaching implication on successful greenhouse production was titled "The Template Method for Growing: Case Studies in Maximizing Quality and Efficiency."

Three speakers teamed up for this one and each brought a different perspective to the room, while agreeing on the importance of planning, documenting, tracking and staying consistent with each crop every season. Matt Foertmeyer (Foertmeyer & Sons Greenhouse, Ohio), Bob Dickman (Dickman Farms, New York) and Jason Twaddell (Ball Seed Company, Illinois) presented an eye-opening discussion about production planning that takes strategy to the next level. It was an exploration of how they build production templates that allow for strategic direction, data collection and improvement immediately and for subsequent years.

Developing a defined production template for every crop sets expectations and results in a guide for the entire team to follow. According to the presenters, it's proactive versus reactive, allows you to hit tight sales windows and even tighter retail specs, reduces guesswork and improves training, and helps your group plan tasks by creating roadmaps. Having a clear template for all phases of every crop, saved digitally, includes creating visual and measured specs at each stage of production (propagation, vegetative growth, flower and finish).

This allows you and your team to plan tasks for each crop and leaves you with living documents that can evolve or grow with experiences year to year. Save these documents in a shared system like Microsoft OneDrive, Dropbox, Google Docs or whatever system you prefer, but be sure the files are easily accessible by the entire team via mobile use. Luckily, there are a ton of cloud-based file programs to choose from. Find the one that works best for your team and stick with it.

Most likely, you've been growing without detailed templates for years, maybe even decades. That's okay. You can still grow great crops most of the time. But how do you train new growers efficiently? How do you improve each season or track improvement? These are the questions a template will answer. And here are the steps to implementing this method in your operation.

Defining expectations

The first step in building a template method in your greenhouse is to set expectations for each crop. The Cultivate speakers reminded the audience that you need something to aim at BEFORE you can hope to hit the target. This means you need to know and record what each plant needs to look like at each phase of production. Thankfully,

these days, most of your growers will have a phone in their pocket with a great camera able to snap photos of the ideal spec. Once you have a folder of images, attach them (digitally) to your template file and you'll always have a visual reminder of exactly what you're aiming for.

Begin each crop with the end in mind. Your goal specs should include the photo mentioned above, clear measurements or metrics, and should cover each phase of production. Some examples shared by the speakers include ship week, height, width, number of blooms and percent in color.

Building schedules

Once you've laid out the expectations, it's time to jump into your shared documents and start creating crop schedules for each key product. Start with your top crops and add to the library each season or year. This requires plenty of office time, which can be daunting, but it's well worth the time and once the schedules are done, you won't need to touch them very much moving forward.

One question that came up during the session was where exactly to find the production planning information to fill the templates? The presenters had a list of places to begin. First is your experience and the experience of your growing team. You have years of knowledge, so might as well get it down on paper. Expand out to your network of peers to get input. Then consider your breeding company partners or sales reps. Each one has a trove of knowledge from which to draw.

Beyond the people, our industry is loaded up with print and digital resources like product information guides, books, websites and, of course, trade magazines like GrowerTalks, that offer culture tips just about every issue. Digital and social media like Facebook and YouTube are becoming solid resources, as well, if you vet the source.

Dickman Prop Template

FAMILY: Calibrachoa

SERIES Calaver

VEGETATIVE/SEED NOTES	TRAY SIZE: 100
PLANTS PER CELL:	1
CROP TIME:	7wks 4-3 8wks 6-13 9wks 14-41
ZONE:	
VPO PRODUCTION:	100/750
STOCK FREQUENCY:	1
UNC/2A/10/10W:	Assess
FUNGICIDE ROTATION:	USE program
PGR APPLICATIONS:	Day 28 8 Nemo/Finest Spray 3750/200ppm Late season Day 35 Bonal 30ppm Drench
PRINCH:	Machine 3 Full Nodes Day 21
LIGHTING:	16hrs 600
FEED:	17-4-17 Call Feed day 14 Watch for iron chlorosis
pH/EC:	5.8/2.0

Additional Notes: Watch for tip abortion day 2-21. After VPO allow dry to level 2. Don't Call!

FINISH NOTES

Size Pinch 1 gal. 4-13, HBS
Crop time 6, 6, 12

Finish Spacing 18" tape 1 gal

Feed Requirements: Watch for iron chlorosis

Fungi Rotation: Powderly Mural Drench before hanging/spacing 4oz/100gal Continue r

PH: Bonal Spray Branch 40 and endge


8-time Florel 2500/200ppm spray 7 wks after transplant

Finish Finish Trim uneven branches before hanging

Color Specific: notes Check colors late, Sky Blue 30ppm Bonal

Additional Notes: HBS just right on face until 8-time Florel done

Mallet 2oz/200gal drench 2wks before ship. Watch aphids



Creating templates (for each production phase)

Once you've gathered resources and started entering information on each crop, start breaking it all down by production phases. The speakers suggest propagation, vegetative growth and flowering/finishing. In your template for each phase, consider including:

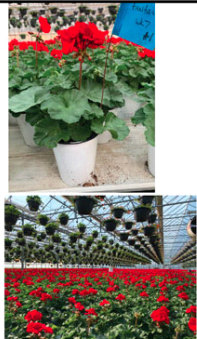
- Approximate length in days
- Climate (soil/air temps, RH, light levels, air exchange)
- Flowering requirements
- Moisture management notes
- Fertility requirements
- Media pH/EC range
- Crop protection
- PGR strategy

Foertmeyer Finished Template

Fantasia Geranium Qt.

Ship: week 7
Ship: week 17-18

Average Grow Time	Direct Stick from Callus : 12 weeks Stick Callus : 1wk7 (direct in cell) - Space out of tray: wk11-12
Callus Root	- Capsil: 8oz/ 100gal : 1 application immediately after stick, avoid sunny day application - Hand misting : every hr, lower frequency as roots initiate - Pull Shake until root initiation - Florel : 500ppm (6 weeks or earlier before ship) (wk 10-11) - BB: 2500ppm, 1 wk after Florel, 2" 89 application if needed (wk12) - Cycotec: 1250ppm, 1 wk after Florel (wk12)
Temperatures	Start : 68 degrees End : 60 degrees
Pinch / Space	- Remove dead blooms/bud after Florel - Space 5-6 weeks after transplant
Irrigation	- Sub Irrigate once spaced - EC5 set point : 64-68%
Fertilizer	- Nature's Source (100ppm)
Insect Control	- BotaniGuard Dip of Callus cutting - Cucumers sachet at stock (1 per 60c tray) - WVO, Hypoxylon, Aethes, Aphidletes, Colemani, Orius (see weekly application document for rates)
Fungicide	- Root Shield Dip of Callus cutting



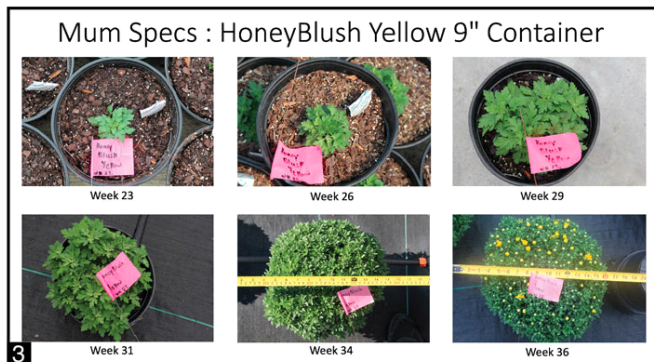
During the session, the presenters each shared examples of the templates they use or have used in the past. Each was different, but included much of the same information. Matt talked about years of photos filed for each crop that the team at Foertmeyer can go back and reference.

Imagine having an organized source of photos showing an ideal crop week by week—the benefit that could have on

your final crop quality is incredible. Check out some of the photos included with this article to see template examples. Solicit input from your team about how they want to see the information and you'll have a much better chance of implementation.

Review, revise, refresh

When working a strategy, one of the most important steps is to circle back immediately at the end of the process and evaluate successes and failures. Meet with your team at the end of each crop season and go over the method to find any breakdowns. And for each crop, identify any challenges and document them. Don't allow too much time to pass before tackling this step because things move quickly in a greenhouse, and the next thing you know, you've forgotten quite a bit. It's also better to have a 30-minute meeting after each crop ships versus an hours-long meeting to go crop by crop. You and your team will appreciate it.



The speakers ended the discussion with a few tips—first and foremost, keep it flexible. Your templates are playbooks and not marching orders. As a greenhouse “coach,” you start each crop with a game plan, but prepare to call plenty of audibles. But like a good coordinator, document these adjustments because they'll no doubt come at you again.

Walk your crops. There's absolutely no template in the world that takes the place of seeing and feeling your plants every day.

Finally, the presenters encouraged growers to “inspect what you expect.” If you directed your team to hit a certain spec, go out there and measure the plants, check the roots and bloom count, and determine if they were successful. If so, buy them a round of Gatorade. If not, have a quick, stand-up meeting to go over where the crops need to be. Before long, you'll have a database of templates and a team that's on the same

Mysty Salvia; 1 Gallon

Crop Stage	Propagation (4-5 weeks)					Finish Stage (9 weeks)								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Week of Production														
Temperature	70-72F		68-72F			68-72 ADT								
Humidity	90-95%		80-85%			Average finished humidity								
Light Levels	<2,000FC		2 – 4,000FC			Full light intensity; increased DLI hastens flowering								
Moisture Management	Level 4-4.5		Level 3-4			Alternate between level 2 and 4								
Crop Protection	Botrytis and FG		Aphids, WF, Thrips			Aphids, Whitefly, Thrips (when flowering)								
Notes	<ul style="list-style-type: none"> Off mist by day 12 Can root quick and stretch so be ready Pinch to <u>three</u> nodes around day 21 No PGR on the liner 					<ul style="list-style-type: none"> B9 or B9/Cycocel to tone if needed or low rate paclobutrazol drench 0.5 – 1ppm 9 - 10 weeks TP should be ready to ship at 68 ADT 2-3 open flowers at ship Finished height 14-18" (including pot) 								

page. Most importantly, your crops will ship on time and on point.

- *Template 1: Dickman Farms uses a template for each key crop they propagate. Notice this calibrachoa template includes information on PGRs, pinching, pH/EC, specific issues to watch for and even notes on finishing the crop.*
- *Template 2: This finished geranium template from Foertmeyer & Sons covers the critical points in a straightforward way with photos. They have a clear target and all the info needed to stay on track.*
- *Template 3: Photos are a powerful way to show your production team where crops need to be from week to week. This look at 9-in. mum production covers 13 weeks visually.*
- *Template 4: Week by week, this production team knows when and what to do to keep these salvia on track. Check out the notes, added throughout the season for future reference and training.*

In “The Template Method for Growing: Case Studies in Maximizing Quality and Efficiency” session at Cultivate’21, three growers shared the importance of having templates to follow for each crop at each stage. Here are some of their dos and don'ts to help with the process:

DO

- Save photos
- Keep notes
- Stay focused on what's critical
- Look at new genetics as improvements

DON'T

- Guess
- Be too rigid
- Forget to review
- Forget to communicate with the team