Production Scheduling©

Karen Eichholz
Elands River Nursery CC, PO Box 379, Uitenhage, RSA 6230
Email: karen@elands.co.za

Hi everyone! Firstly, please understand that I am not here to teach you anything, but to share my experience with you. I am sure that I can learn a lot from each one here and for that reason I would like to do this talk as an open discussion, please feel free to comment or ask questions as we go along. Also understand that I work primarily with plants and not with people — people scare me, so bear with me.

ELANDS NURSERY

Let me start by giving you a bit of information on Elands Nursery. The nursery is owned by the Carter Brothers. Their parents bought the property in approximately 1973 when it was being run as a cut flower farm. Mrs. Carter started growing some plants to sell at a farm stall they owned. The wholesale business grew, and in the early 1990s they also owned five retail outlets in the Eastern Cape.

When the eldest son, Rick, got involved in the business, focus was placed on wholesale, and the last retail outlet was eventually closed in 2007. The nursery operation consists of:

- Main farm (22 ha): Holding capacity just over 500,000 plants from 15-cm pots to 100-L drums (of approximately 650 – 700 taxa of trees, shrubs, and ground covers). This excludes the growing on area and 4- and 6-pack production.
- Hillside farm (5 ha): Mother stock, mostly for division, in open ground and the *Howea forsterana* (kentia), *Syagrus romanzoffiana*, and *Washingtonia robusta* palms for growing on.
- Portion 416 (the name of the property) (12 ha): Will accommodate 23,490 trees in large containers (20 L up to 400 L).

The nursery has been going through a very active growth phase over the last few years and supplies the Eastern, Western, and Northern Cape as well as the Free State and Gauteng markets. Most plants are home grown, although a fair amount of material is bought in as tissue culture plantlets or plugs from other suppliers.

Lets be honest, being a good grower does not mean you are a good manager.

If it were up to me, I would grow all the plants I love, with total disregard for what sells, what the market demands, and more importantly for when it sells. And so, to have a successful business, there are many factors that we need to manage including: staff, delivery, invoicing, customer relations, finances, etc.

How many of you prepare an annual budget with targets of what you want to sell?

How many of you, plod along and hope you get it right? Just go by the old gut feeling? (This is okay if you have a brilliant brain, but I certainly forget lots of things!)

An important question I often ask myself is: What will happen if I drop dead right now? How long does it take to find a replacement grower and how long does it take this person to get the overall picture of what is in production at a given moment? Continuity is lost.

And this is why we at Elands, realised that it was essential to do annual planning, we need to set targets, identify the range of plants we want to sell, when we want

to sell them, and how many we feel we can sell. It's no good having red poinsettias ready after Christmas, because by then you've missed the boat.

Next you need to identify what you need so that this can be achieved:

- Motherstock – good, healthy, and vigorous.
- Propagation facilities.
- Labour to do the work.
- Good medium for rooting.
- The right rooting hormone.
- Timing – doing the job so that it will be completed with a target date in mind.

   This is why we approached a group of computer specialists to help us create a propagation scheduling program. This is rather complex and we find it difficult to communicate with these people — we talk plants and they talk bytes! The way in which we have tackled this, is to identify the processes we will follow during propagation and also to decide what historical data we would like to have available for use in future planning.

Briefly the program consists of the following components:

- Plant subsystem
- Recipe subsystem
- Employee subsystem

SYSTEM COMPONENTS

I will now go into more detail on each of these subsystems.

Plant Subsystem. Every plant has its own "page" where the following eight details are recorded:

1. Name.
2. Plant breeder's rights (PBR) and trade mark (^{TM}) status.
3. Inventory type (e.g., tree, shrub, palm, etc.).
4. Trialing (yes/no).
5. Indigenous/exotic.
6. Flowering season.
7. Photographs.
8. Linked to recipes.

Recipe Subsystem. The recipe is the set of instructions for growing a particular plant (order seed, sow date, container size to plant into, transplant to pots, sell).

Every recipe will have:

- Name/Description — e.g., avocado from cuttings or plant "A" from seed, could be lavender in winter or summer, etc.
- Propagation type (e.g., cuttings, seed, tissue culture, etc.).
- Number of weeks to complete process.
- Container size grown for (if growing for 4 packs, you need to multiply units to produce by 4).

   The recipe will tell you, for example, that you need to take cuttings of plant "x" in Week 1, using "y" rooting hormone, and tray size "z," etc.

   Place cuttings in propagation house # 3 for 6 weeks.

In Week 7, give first spray with dwarfing agent.

In Week 9, plant into 10-cm pots and move to hardening-off house.

In Week 13, plant into final container to be ready for sales in Week 16.

Some recipes may apply to many plants, but special comments can be added that would make the recipe specific for a particular plant or even for a particular plant in a particular season (cuttings take longer to root in winter than in spring). You may add comments like: "wounding of stem improved rooting," or for seed-progagated plants, you may say something like "do not cover seed" or "cover with vermiculite."

These recipes tell you what to do, when, and how. A task list in other words. You may change your recipe as you experiment and find more successful methods. Historical data will not be lost and ultimately rooting percentages are linked to specific recipes, so that you can decide which recipe will give the best results at a given time.

From the recipe table, you will create your task lists.

Batches will be created once you start propagation of a specific product. The batch code is used all along to indentify the particular job you are busy with.

The Employee Subsystem. This includes daily work tables and rates for specific jobs. Info listed, is name, surname, and for the daily work table, you will list in addition batch names, quantity of cuttings, percentage take, number grown, weeks to grow, and date closed. As a matter of interest I have found in the past that I can have five people doing the same job on the same day, but only one person's cuttings will take. Obviously I want that individual to do the propagation of that particular plant in the future. All production work is captured specifying who did the particular job. A production rate is associated with a particular job and the program will automatically calculate the bonus to be paid. Once a batch is completed, data such as rooting percentage or time to root is captured. Reports can then be printed to tell me who my better propagators are. You may find that a particular person produces many cuttings per day, but that the actual strike rate (root percentage) is very low. This means that you need to do more training to solve the problem.

All the time, this program will keep track of my annual budget vs actual number of plants grown. This allows the grower time to make adjustments to the propagation plan if need be.

To end everything off, you will complete a batch once you capture data to say what percentage of cuttings were rooted by the required date. Once a batch is complete, you can not change any data and the batch becomes inactive. You can however access the data to use in future planning or to create new recipes (the how to do).

Data for a particular plant will be listed and can be sorted, for example rooting percentages, or shortest number of days to root, or best results per propagation facility, or by propagationist, etc.

And the conclusion is that if you stick to the game plan, you can lie back and enjoy the fruit of your labour.