# How to Computerize Production Scheduling

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## INTRODUCTION

Before you can begin to write or use any scheduling program, you will need to compile data for the program. You will need relevant information on your company that covers labor and supply expenses, soil mix volumes, and container volumes. After you start to compile all of this information, you may realize that you are not totally-prepared to computerize your scheduling. In order to use any computer program to assist with scheduling, a complete understanding of the materials, steps in production, expenses, and timelines for your crops is needed.

My program was first created to schedule annual flower production for greenhouse space and availability for sale. The first step towards the program was creating a list of plants I wanted to track and what basic information I wanted from the program. The basic information I wanted included the following:

- Dates of flower plug arrival and the average date the planted flowers would be saleable.
- Numbers of flats per variety and total number of flats per week.
- Greenhouse space needed per week and monthly total space needed.
- Supplies needed per week and month and even year.

## MAIN TABLES TO BE ENTERED TO BUILD DATABASE

**Table 1: Labor Expenses.** This table will require the greatest modification among different companies, since every firm has differences in methods of potting plants, piecework (labor incentive) rates, as well as different crops. Some of the fields of data that are required in the table are covered below. This table has several calculations of data that can give you a large "what if"scenario for labor expenses.

## EXPLANATION OF TABLE 1.

- **Job description** - list of different jobs involved in propagation.
- **Number of workers** - number of people usually used for the job.
- **Average dollars per hour** - average wage of the crew for the job.
- **Number of hours** - time required for the job.
- **Minimum pots per day** - quota set by management for the crew.
- **Dollars per minimum** - calculation of (# of people * avg. $ per h * # of h).
- **Bonus dollars per pot** - bonus set by management for every plant over quota.
- **Average pots per day** - average pots planted per day. This number is updated regularly.
- **Bonus pots** - calculation of (average pots per day - minimum pots per day).
- **Bonus expense** - calculation of (bonus $ per pot * bonus pots).
- **Average expense per day** - calculation of ($ per minimum + bonus expense).

**Table 1.** Labor expenses.

| Job Description | No. of workers | Avg $ per hour | No. of hours | Min. pots per day | $ per min | Bonus $ per pot | Avg pots per day | Bonus pots | Bonus $ | Avg exp per day | Avg exp per pot |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mixing perlite | 1 | $7.00 | 1 | | | | | 0 | $0.00 | $0.00 | $0.00 |
| Mixing direct stick soil | 1 | $6.00 | 2 | | | | | 0 | $0.00 | $0.00 | $0.00 |
| Mixing pot soil | 1 | $6.00 | 4 | | | | | 0 | $0.00 | $0.00 | $0.00 |
| Mix and fill flower tray | 4 | $6.00 | 3 | | $72.00 | | | 0 | $0.00 | $72.00 | $0.00 |
| Canning 4-inch flat | 1 | $6.00 | 8 | 200 | $0.00 | $0.50 | 200 | 0 | $0.00 | $0.00 | $0.00 |
| Canning 4-inch pots each | 1 | $6.00 | 8 | 200 | $0.00 | $0.03 | 200 | 0 | $0.00 | $0.00 | $0.00 |
| Canning 1 gal | 4 | $6.00 | 8 | 2500 | $192.00 | $0.03 | 4000 | 1500 | $45.00 | $237.00 | $0.06 |
| Canning 3 gal | 4 | $6.00 | 8 | 1600 | $192.00 | $0.10 | 2000 | 400 | $40.00 | $232.00 | $0.12 |
| Canning 5 gal | 4 | $6.00 | 8 | 1600 | $192.00 | $0.10 | 2000 | 400 | $40.00 | $232.00 | $0.12 |
| Canning 7 gal | 4 | $6.00 | 8 | 600 | $192.00 | $0.15 | 1000 | 400 | $60.00 | $252.00 | $0.25 |
| Canning 10 gal | 4 | $6.00 | 8 | 400 | $192.00 | $0.20 | 600 | 200 | $40.00 | $232.00 | $0.39 |
| Canning 20 gal | 4 | $5.70 | 8 | 400 | $182.40 | $0.20 | 600 | 200 | $40.00 | $222.40 | $0.37 |
| Planting flower plug | 1 | $5.70 | 8 | 200 | $45.60 | $0.00 | 200 | 0 | $0.00 | $45.60 | $0.23 |
| Planting 4-inch stock plants | | | | | | | | | | | |
| Run and load flowers | | | | | | | | | | | |
| Unload flowers | | | | | | | | | | | |

**Table 2.** Soil expenses.

| Soil ingredients | Volume | Units | Cost | Cost per unit | Unit | Rate/yd | Unit | Cost/yd |
|---|---|---|---|---|---|---|---|---|
| Agrosoke | 55 | lbs | $278.00 | $5.05 | lbs | 2.50 | yd | $12.64 |
| Aquagro 2000 | 120 | lbs | $291.00 | $2.43 | lbs | 5.00 | oz | $12.13 |
| Banrot 8G | 40 | lbs | $271.00 | $6.78 | lbs | 1.00 | lbs | $6.78 |
| Excell 21-5-20 | 50 | lbs | $17.00 | $0.34 | lbs | 0.60 | lbs | $0.20 |
| High N 24-4-7 | 50 | lbs | $33.78 | $0.68 | lbs | 9.00 | lbs | $6.08 |
| Lawn and garden | 40 | lbs | $5.45 | $0.14 | lbs |  | yd | $0.00 |
| Merit-broadcast rate | 40 | lbs | $638.80 | $15.97 | lbs | 85.30 | grams | $1,362.24 |
| Merit | 30 | lbs | $54.30 | $1.81 | lbs | 6.00 | lbs | $10.86 |
| Micromax | 50 | lbs | $47.33 | $0.95 | lbs | 1.00 | yd | $0.95 |
| Nutricote | 50 | lbs | $40.00 | $0.80 | lbs | 15.00 | lbs | $12.00 |
| Osmocote 14-14-14 | 50 | lbs | $39.00 | $0.78 | lbs | 6.00 | lbs | $4.68 |
| Osmocte 18-6-12 | 50 | lbs | $39.56 | $0.79 | lbs | 9.00 | lbs | $7.12 |
| Peat moss-7.6 ft$^3$ | 7.6 | cu. ft.=28 yds. | $6.00 | $0.39 | ft | 1.00 | yd | $10.66 |
| Peat moss-large bale | 110 | cu. ft.=4 yds. | $93.65 | $0.43 | ft | 1.00 | yd | $11.49 |
| Perlite | 4 | cu. ft.=15 yds. | $7.47 | $1.87 | ft | 1.00 | yd | $50.42 |
| Red bark | 90 | yds | $1,065.00 | $11.83 | yds | 1.00 | yd | $11.83 |
| Red sand | 13 | yds | $134.07 | $10.31 | yds | 1.00 | yd | $10.31 |
| Regrind | 65 | yds | $1,065.00 | $16.38 | yds | 1.00 | yd | $16.38 |
| Soil conditioner | 65 | yds | $1,065.00 | $16.38 | yds | 1.00 | yd | $16.38 |
| Sprint | 5 | lbs | $26.32 | $5.26 | lbs | 1.00 | yd | $0.00 |
| Step | 50 | lbs | $26.14 | $0.52 | lbs | 1.84 | lbs | $0.96 |
| Sunshine Mix #1 | 4 | ft$^3$=15 yds. | $15.53 | $3.88 | ft | 1.00 | yd | $104.83 |
| Superbloom | 20 | lbs | $23.05 | $1.15 | lbs | 0.60 | lbs | $0.69 |
| White fill sand | 23 | yds | $720.00 | $31.30 | yds | 1.00 | yd | $31.30 |

- **Average expense per pot** - calculation of (average expense per day / average pots per day).

**Table 2:** Soil Expenses. The soil expenses database is a basic list of all ingredients used in our soil mixes. Extra ingredients can be added at any time to the bottom of the list. If you choose to use this program, it is best to add items to the bottom of the list and to not delete any old items. If you delete any items, this may affect the calculations for other tables. All information is listed in the size it is purchased in, and then broken down into smaller units. There are several calculations of the inputted data on this table. Calculations are italicized and in parenthesis.

## EXPLANATION OF TABLE 2.
- **Soil ingredients** - list of ingredients.
- **Volume** - volume of ingredients.
- **Units** - units used for volume of ingredients as purchased.
- **Cost** - cost for ingredients as packaged.
- **Cost per unit** - this is two columns. The first is a calculation of (*cost / volume*). The unit part is inputted.
- **Rate/yd** - amount inputted by management and changed as needed.
- **Unit** - entered as needed to calculate rates. This is different from other units column.
- **Cost/yd** - calculation of (*cost per unit * rate / yd*).

**Table 3: Can Volume.** The can volume database is the easiest database to create. The majority of containers that we use are Lerio, so I chose Lerio as the standard container sizes to use. Lerio supplied a price list that included container volume and number of containers per yard. The only calculation needed was discounted price. The price and discount will change with every company. The prices used here are 1997/1998 prices. Calculations will be italicized and in parenthesis.

## EXPLANATION OF TABLE 3.
- **Container type** - taken from Lerio price list.
- **Can code** - taken from price list.
- **List cost** - taken from price list.
- **Discount cost** - calculation of (*inputted discount * list price*).
- **Net cost** - calculation of (*list cost – discount cost*).
- **Volume in yards** - taken from price list.
- **Number of pots per yard** - taken from price list.
- **$ per yard** - calculation of (*# of pots per yard * $ per yard*).

**Table 4: Soil Mixes.** As with labor expenses, this table will vary widely between companies. The soil mixes used in this program are our basic mixes and do not reflect the most current mixes in use. The mixes here can be modified in any way and the program will still work as long as the space from total volume to cost per yard is not modified for each mix. As with the other table explanations, calculations are italicized and in parenthesis.

## EXPLANATION OF TABLE 4.
- **Ingredients** - this is a list of all ingredients used in the soil mix.
- **Quantity** - quantity of the ingredients needed. This is the actual quantity, not unit quantity.

**Table 3.** Can volume.

| Container type | Can code | List $ | Discount | Net $ | Volume-yds | No. pots/yd | $ pots/yd |
|---|---|---|---|---|---|---|---|
| 2¼-inch Lerio | SR225 | $0.01 | $0.00 | $0.01 | 0.000249 | 4016 | $29.72 |
| Lerio flats for 2¼ inch | | $1.85 | $0.48 | $1.37 | N/A | 63 | $86.25 |
| 3-inch Lerio pots | SR300 | $0.05 | $0.01 | $0.04 | 0.000433 | 2310 | $85.47 |
| Lerio flats for 3 inch | | $0.66 | $0.17 | $0.49 | N/A | 64 | $31.26 |
| 4-inch Lerio pots | VSR4 | $0.06 | $0.02 | $0.04 | 0.000713 | 1402 | $62.25 |
| Lerio tray for 4-inch pots | SST418 | $0.61 | $0.16 | $0.45 | N/A | 78 | $35.21 |
| 4-inch flower pots-18/sheet | | $0.02 | $0.01 | $0.01 | 0.000556 | 1170 | $17.32 |
| Trays for 4-inch flowers | | $0.40 | $0.10 | $0.30 | N/A | 65 | $19.24 |
| 1 gal | C650 | $0.21 | $0.05 | $0.16 | 0.003518 | 284.25 | $44.17 |
| 5-gal egg can | C1150 | $0.95 | $0.25 | $0.70 | 0.007979 | 125.33 | $88.11 |
| 5-gal pecan | TC1020 | $3.24 | $0.84 | $2.40 | 0.019487 | 51.32 | $123.04 |
| 10-gal blow mold | B10 | $2.07 | $0.54 | $1.53 | 0.050855 | 19.66 | $30.12 |
| 10-gal injected | C1700H | $3.30 | $0.86 | $2.44 | 0.052176 | 19.17 | $46.81 |
| 15-gal blow mold | B15 | $2.52 | $0.66 | $1.86 | 0.051166 | 19.54 | $36.44 |
| 15-gal injected | C1900 | $3.69 | $0.96 | $2.73 | 0.065701 | 19.22 | $52.48 |
| 20-gal blow mold | B20 | $4.90 | $1.27 | $3.63 | 0.098159 | 10.19 | $36.95 |
| 20-gal injected | C2150 | $6.62 | $1.72 | $4.90 | 0.099055 | 10.1 | $49.48 |
| 25-gal blow mold | B25 | $5.20 | $1.35 | $3.85 | 0.124541 | 8.03 | $30.90 |
| 30-gal vacumn formed | | $19.00 | $4.94 | $14.06 | 0.154278 | 6.48 | $91.11 |
| 45-gal blow mold | B45 | $11.47 | $2.98 | $8.49 | 0.229253 | 4.36 | $37.01 |
| 45-gal vacumn formed | | $21.00 | $5.46 | $15.54 | 0.211871 | 4.72 | $73.35 |
| 90-gal-32-inch-tree box | | $44.00 | $11.44 | $32.56 | 0.439632 | 2.27 | |

- **Unit** - the unit measurement of the ingredients needed.
- **Volume in yards** - the amount of volume the ingredients equal.
- **Cost per mix** - calculation of (*quantity * cost per unit*). This data is taken from the soil expenses (Table B).
- **Total volume** - calculation of the volume of all ingredients used.
- **Total cost** - calculation of all costs for the mix.
- **Cost per yard** - calculation of (*total cost / total volume*)
- **Cost per flat** - this is only shown where the soil is used for flats. It is a calculation of (*cost per yard / 85 flats*).

## THE SCHEDULING PROGRAM

**A. Table 5: Plug Arrival-booking Example.** This is where I input the actual plug count of each variety ordered. The table is divided by plant varieties and by weeks in the year. The weeks are used since numbered days change year to year. These numbers of plugs are changed year to year.

**B. Table 5: Flats Arrival-booking Example.** This table is only a simple calculation. It takes the number of plugs from the prior table and calculates the number of flats that need to be filled for each week. The formula is the plug number divided by 18 for our flat size. This table also calculates the total flats on hand and how many greenhouses are needed. The far right column calculates the number of flats for each variety to aid in ordering tags.

**C. Table 5: Calculation of Flats Ready at End of Production.** This table is another simple calculation. It takes the number of plugs from the prior table and calculates the number of flats that will be ready on a specific week. It will take Week 5 flats and put this quantity in Week 9.

**D. Table 6: Perennial and Groundcover Bookings.** This is a list of perennial and groundcover plants booked for each month of the year. All counts are complete trays of 98 plants per tray.

**E. Table 7: Supply Schedule for Flowers.** This table incorporates all supplies for flowers. All figures on this page are calculations from other tables.

- **Flats and Pot Sheets** - this row calculates the flats and pots sheets needed each month by adding the number of flats of flowers each month from the flats arriving (Table 5).
- **# of Yards of Soil** - this row calculates how much soil is needed by multiplying the number of flats needed each month by the volume of soil needed in each flat. The soil volume is looked up in can volume (Table 3).
- **# Batches of Soil** - this row takes the number of yards of soil needed and divides it by the number of yards per batch of soil listed in the flower soil mix section (Table 4).
- **Peat Moss** - this row includes the number of batches of soil and divides the number of batches by how many bales of peat moss are needed per batch that is needed in the soil mixes (Table 4).
- **Perlite, Soil Conditioner, Nutricote, Banrot, Aquagrow, Agrosoke, and Merit** - use the same calculation method for peat moss (Table 4).

**Table 4.** Soil mixes.

### 1998 flower mix

| Ingredient | Quantity | Unit | Volume-yds | Cost per mix |
|---|---|---|---|---|
| Peat moss | 7 | 7.6 cu.ft. bales= cu ft | 1.98 | $42.00 |
| Perlite | 3 | 4 cu.ft. bags | 0.45 | $22.69 |
| Propagation mix | 2 | Scoops=1 cu. yds | 2.00 | $20.66 |
| Osmocote 14-14-14 | 15 | lbs | 0.00 | $11.70 |
| Nutricote | | lbs(15/yd) | 0.00 | $0.00 |
| Banrot | 3 | lbs | 0.00 | $20.33 |
| Aquagrow | 4.5 | lbs | 0.00 | $10.91 |
| Agrosoke | 13 | lbs | 0.00 | $65.71 |
| Merit | 26.5 | lbs | 0.00 | $47.97 |

| | |
|---|---|
| Total volume-yd$^3$ | 4.43 |
| Total cost | $241.96 |
| Cost per yard | $54.62 |
| Cost per flat | $0.64 |

### 1998 1 gal mix and larger

| Ingredient | Quantity | Unit | Volume-yds | Cost per mix |
|---|---|---|---|---|
| Regrind | 190 | yds | 190.00 | $2,303.75 |
| Peat moss-large bale | 30.8 | yds(7 bales of 4.4 yds) | 30.80 | $964.17 |
| Red sand | 13 | yds | 0.00 | $79.05 |
| White sand | 10 | yds | 0.00 | $0.00 |
| High N 24-5-7 | | 50 lb bags | 0.00 | $0.00 |
| Nutricote | 66 | 50 lb bags(15 lbs/yd) | 0.00 | $3,123.78 |
| Step | 9 | 50 lb bags | 0.00 | $103.44 |
| Osmocote 18-6-12 | 0 | 50 lb bags | 0.00 | $0.00 |
| Osmocote 14-14-14 | 0 | 50 lb bags | 0.00 | $0.00 |

| | | |
|---|---|---|
| Total volume-yd$^3$ | 220.80 | Cut peat to 7 bales for 14% |
| Total cost | $6,574.19 | Cut peat to 6 bales for 12% |
| Cost per yard | $29.77 | |

## 1998 propagation mix

| Ingredient | Quantity | Unit | Volume-yds | Cost per mix |
|---|---|---|---|---|
| Soil conditioner | 65 | yds | 65.00 | |
| Peat moss-large bale | 5 | 110 cu ft/4 yds | 20.00 | $468.25 |
| Perlite | 54 | cu. ft.=.15 yds. | 8.10 | $403.38 |
| MicroMax | 95 | 1#/yd. Rate | 0.00 | $89.93 |
| | | | | |
| Total volume-yd$^3$ | 93.10 | | | |
| Total cost | $961.56 | | | |
| Cost per yard | $10.33 | | | |
| Cost per flat | $0.16 | | | |

## 1998 jasmine, liriope, lantana, ivy, mix

| Ingredient | Quantity | Unit | Volume-yds | Cost per mix |
|---|---|---|---|---|
| Propagation mix | 4 | Scoops=1 yd/scoop | 4.00 | $41.31 |
| Peat moss | 2 | 7.6 cu. ft bags | 0.56 | $12.00 |
| Nutricote 24-3-7 | 12 | lbs | 0.00 | $9.60 |
| | | | | |
| Total volume-yd$^3$ | 4.56 | | | |
| Total cost | $62.91 | | | |
| Cost per yard | $13.80 | | | |
| Cost per flat | $0.02 | | | |
| Cost per gallon | $0.05 | | | |

## Direct stick mix

| Ingredient | Quantity | Unit | Volume-yds | Cost per mix |
|---|---|---|---|---|
| 3.8 Berger | 1 | 3.8 bale | 0.28 | |
| Perlite | 1 | Bag | 0.15 | |
| Vermiculite | 1 | Bag | 0.15 | |
| Cedar flake | 1 | 20g bucket | 0.09 | |
| Propagation mix | 2 | 20g buckets | 0.18 | |
| Soilgaurd | 1 | lb | | |
| | | | | |
| Total volume-yd$^3$ | 0.85 | | | |
| Total cost | $0.00 | | | |

**Table 5.** Calculation of flats.

| | | Plug arrival booking example | | | | | |
|---|---|---|---|---|---|---|---|
| Plant name | Plant cultivar | WK5 | WK6 | WK7 | WK8 | WK9 | WK10 |
| Begonia | Gin | 1400 | 550 | 1400 | 1375 | 2100 | 1375 |
| Begonia | Mix | 700 | | | 825 | 1750 | 550 |
| Begonia | Scarletta | 700 | 275 | 700 | 825 | 1050 | 825 |
| Begonia | Vodka | 2800 | 1100 | 2800 | 1625 | 5600 | 1650 |
| Begonia | Whiskey | 700 | 275 | 350 | 550 | 700 | 275 |

| | | Flat arrival booking example | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Plant Name | Plant cultivar | WK5 | WK6 | WK7 | WK8 | WK9 | WK10 | Tags and flats |
| Begonia | Gin | 78 | 31 | 78 | 76 | 117 | 76 | 456 |
| Begonia | Mix | 39 | 0 | 0 | 46 | 97 | 31 | 213 |
| Begonia | Scarletta | 39 | 15 | 39 | 46 | 58 | 46 | 243 |
| Begonia | Vodka | 156 | 61 | 156 | 90 | 311 | 92 | 865 |
| Begonia | Whiskey | 39 | 15 | 19 | 31 | 39 | 15 | 158 |
| Flats arriving | | 350 | 122 | 292 | 289 | 622 | 260 | |
| Total flats on hand | | 350 | 472 | 764 | 1053 | 1325 | 1463 | |
| Houses needed | | 0.3 | 0.4 | 0.6 | 0.9 | 1.1 | 1.2 | |

| | | Flats ready example | | | | | |
|---|---|---|---|---|---|---|---|
| Plant name | Plant culitvar | WK9 | WK10 | WK11 | WK12 | WK13 | WK14 |
| Begonia | Gin | 78 | 31 | 78 | 76 | 117 | 76 |
| Begonia | Mix | 39 | 0 | 0 | 46 | 97 | 31 |
| Begonia | Scarletta | 39 | 15 | 39 | 46 | 58 | 46 |
| Begonia | Vodka | 156 | 61 | 156 | 90 | 311 | 92 |
| Begonia | Whiskey | 39 | 15 | 19 | 31 | 39 | 15 |

**Table 6.** Perennial and groundcover bookings.

| Plant name | Size | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | TOTAL TRAYS | TOTAL PLANTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUP-DWF | 1gal | 20 | | | | 10 | | 10 | | | | | | 40 | 4000 |
| CUP-DWF | 4 inch | 30 | | | | 20 | | 10 | | | | | | 60 | 6000 |
| IVY-ALG | 4 inch | | | 50 | | 25 | | 50 | | 50 | 50 | 200 | | 425 | 42500 |
| IVY-ENG | 4 inch | | | 80 | | 35 | | 60 | | 70 | 70 | 300 | | 615 | 61500 |
| JAS-ASI | 1gal | | | | | 150 | 50 | | 50 | 50 | | | | 300 | 30000 |
| JAS-ASI | 4 inch | | | | | 400 | 300 | | 300 | 300 | 400 | | | 1700 | 2E+05 |
| LAN-GOL | 1gal | 50 | | | | 40 | | 20 | | | | | | 110 | 11000 |
| LAN-GOL | 4 inch | 80 | | 80 | | 80 | | 80 | | 50 | | | | 370 | 37000 |
| LAN-PUR | 1gal | 25 | | | | 15 | | 10 | | | | | | 50 | 5000 |
| LAN-PUR | 4 inch | 60 | | 55 | | 55 | | 55 | | | | | | 225 | 22500 |
| LAN-RAD | 1gal | 5 | | | | 5 | | | | | | | | 10 | 100 |
| LAN-RED | 1gal | 5 | | | | 5 | | 10 | | | | | | 20 | 2000 |
| LAN-WHI | 1gal | 10 | | 10 | | 10 | | 10 | | | | | | 40 | 4000 |
| LAN-WHI | 4 inch | 50 | | | | 30 | | 30 | | | | | | 110 | 11000 |
| SAL-GPK | 1gal | 10 | | 10 | | 10 | | 20 | | | | | | 50 | 5000 |
| SAL-GRA | 1gal | 10 | | 10 | | 10 | | 20 | | | | | | 50 | 5000 |
| SAL-GRD | 1gal | 30 | | 30 | | 30 | | 30 | | | | | | 120 | 12000 |
| SAL-GWH | 1gal | 10 | | 5 | | 5 | | 10 | | | | | | 30 | 3000 |
| VIN-MAJ | 4 inch | 50 | | 50 | | 50 | | | | 50 | | | | 200 | 20000 |

**Table 7.** Supply schedule for flowers 1999.

| Supplies | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flats and pot sheets | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| Yards of soil (number) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| Batches of soil (number) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| Peat moss | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - |
| Perlite | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - |
| Soil conditioner | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - |
| Nutricote | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - |
| Banrot | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - |
| Aquagrow | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - |
| Agrosoke | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - |
| Merit | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - |
| Supplies for flowers and other bookings | | | | | | | | | | | | | |
| Total flats and pot sheets | 1494 | 0 | 1744 | 0 | 3811 | 1633 | 1583 | 1633 | 2850 | 2844 | 2778 | 0 | 20372 |
| Total Merit-lbs | 0.0 | 0.0 | 45.0 | 0.0 | 61.7 | 0.0 | 58.3 | 0.0 | 16.7 | 0.0 | 0.0 | 0.0 | 182 |

|             | Jan         | Feb | Mar         | Apr      | May         | Jun         |
|-------------|-------------|-----|-------------|----------|-------------|-------------|
| Pot expense | $1,058.52   | Ø   | $1,235.59   | Ø        | $2,699.41   | $1,156.89   |
| Merit       | Ø           | Ø   | Ø           | $23.30   | Ø           | $31.92      |
| Total       | $1,058.52   | Ø   | $1,258.89   | Ø        | $2,731.33   | $1,156.89   |

|             | Jul         | Aug         | Sep         | Oct         | Nov         | Dec | Total       |
|-------------|-------------|-------------|-------------|-------------|-------------|-----|-------------|
| Pot expense | $1,121.48   | $1,156.89   | $2,018.66   | $2,014.72   | $1,967.50   | Ø   | $6,150.41   |
| Merit       | Ø           | $30.20      | Ø           | $8.63       | Ø           | Ø   | $55.22      |
| Total       | $1,151.67   | $1,156.89   | $2,027.28   | $2,014.72   | $1,967.50   | Ø   | $6,205.62   |

**Table 8. Supplies list for perennials and groundcovers.**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **For ivy flats-jasmine mix w/fungicide** | | | | | | | | | | | | | |
| Soilgaurd | 0 | 0 | 7 | 0 | 3 | 0 | 6 | 0 | 7 | 7 | 28 | 0 | 58 |
| Flats and pot sheets | 0 | 0 | 722 | 0 | 333 | 0 | 611 | 0 | 667 | 667 | 2778 | 0 | 5778 |
| Yards of soil (number) | 0 | 0 | 11 | 0 | 5 | 0 | 9 | 0 | 10 | 10 | 43 | 0 | 89 |
| Batches (number) | 0 | 0 | 3 | 0 | 1 | 0 | 2 | 0 | 2 | 2 | 10 | 0 | 20 |
| **For Marathon flats-jasmine mix w/Marathon lantana, mx heather, vinca** | | | | | | | | | | | | | |
| Merit-ounces | 0 | 0 | 45 | 0 | 62 | 0 | 58 | 0 | 17 | 0 | 0 | 0 | 182 |
| Flats and pot sheets | 1222 | 0 | 750 | 0 | 1028 | 0 | 972 | 0 | 278 | 0 | 0 | 0 | 4250 |
| Yards of soil (number) | 19 | 0 | 12 | 0 | 16 | 0 | 15 | 0 | 4 | 0 | 0 | 0 | 65 |
| Batches (number) | 4 | 0 | 3 | 0 | 4 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 15 |
| **Other flats-jasmine mix jasmine** | | | | | | | | | | | | | |
| Flats and pot sheets | 272 | 0 | 272 | 0 | 2450 | 1633 | 0 | 1633 | 1906 | 2178 | 0 | 0 | 10344 |
| Yards of soil (number) | 4 | 0 | 4 | 0 | 38 | 25 | 0 | 25 | 29 | 34 | 0 | 0 | 159 |
| Batches (number) | 1 | 0 | 1 | 0 | 9 | 6 | 0 | 6 | 7 | 8 | 0 | 0 | 36 |

**For Merit gallons-regular mix lantana, mx heather**

| | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Merit-lbs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1-gal pots (number) | 11270 | 980 | 0 | 8330 | 0 | 5880 | 0 | 0 | 0 | 0 | 26460 |
| Yards of soil (number) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Batches (number) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**For other gallons-regular mix jasmine, salvia**

| | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-gal pots (number) | 5880 | 5390 | 0 | 20090 | 4900 | 7840 | 4900 | 4900 | 0 | 0 | 53900 |
| Yards of soil (number) | 0 | 114 | 0 | 424 | 103 | 166 | 103 | 103 | 0 | 0 | 1014 |
| Batches (number) | 0 | 18 | 0 | 69 | 17 | 27 | 17 | 17 | 0 | 0 | 164 |

**Total pot supplies perennials and groundcovers**

| | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total gallons pots | 17150 | 6370 | 0 | 28420 | 4900 | 13720 | 4900 | 4900 | 0 | 0 | 80360 |
| Total 4-inch sheets and trays | 1494 | 1744 | 0 | 3811 | 1633 | 1583 | 1633 | 2850 | 2844 | 2778 | 20372 |
| Total yards of jasmine flat soil | 23 | 27 | 0 | 59 | 25 | 24 | 25 | 44 | 44 | 43 | 313 |
| Total batches of jamine flat soil | 5 | 6 | 0 | 13 | 6 | 6 | 6 | 10 | 10 | 10 | 71 |
| Total Merit | 0 | 45 | 0 | 62 | 0 | 58 | 0 | 17 | 0 | 0 | 182 |
| Total fungicide-Soilgaurd | 0 | 7 | 0 | 3 | 0 | 6 | 0 | 7 | 7 | 28 | 58 |
| Peat moss-large bale | | | | | | | | | | | 0 |
| Peat moss-small bale | 10 | 12 | 0 | 27 | 11 | 11 | 11 | 20 | 20 | 19 | 141 |
| Nutricote-lbs | 62 | 73 | 0 | 159 | 68 | 66 | 68 | 119 | 119 | 116 | 849 |

- **Total Flats and Pots Sheets** - this is a calculation of the flats needed for flowers from the supply schedule for flowers and supplies list for perennials and groundcovers (Table 7).
- **Pot Expense** - calculation of the number of pots and flats needed times the price of each from the can volume sheet (Table 3).
- **Merit $** - this is a calculation of the total Merit needed times the cost of Merit from soil expenses (Table 2).

**Table 8: Supplies List for Perennials and Groundcovers.** This page works similar to the supplies schedule for flowers (Table 7).

## CONCLUSION

Hopefully I have provided some ideas and samples for anyone interested in computerizing their production and scheduling. As with any program, whether you buy a complete program or write your own, there will be a large amount of data to be inputted before you can start using the program. Before you purchase any program, I would recommend looking at any and all types of scheduling programs that you can find. Some good sources of programs are other growers, searching the Internet, or even construction scheduling programs. Keep in mind that price does not reflect performance. You may want to start with a simple and limited program and upgrade later to a more complex or custom written program. We are currently switching our scheduling over to a new custom written scheduling program. The new program allows every crop to have different growing periods such as weeks, months, or quarters and will even separate crops for the purpose of contract growing. A demo of this program can be downloaded from the following website (www.jchdiversified.com).

If you would like to use my program, it can be downloaded from the Internet at the following website (www.mortellaro.com/ipps).

Should you have any questions, my email address is: jim@mortellaro.com