



Sensational Salad Mixes

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Salad Crops		
Crop	Varieties	Seed Source
Arugula	Astro	Johnny's Selected Seeds/High Mowing
Baby Kale	Vates & Red Russian	JSS & HM
Spinach	Corvair (field production)	HM
Spinach	Shelby	HM
Spinach	Gazelle	JSS
Spinach	Woodpecker	JSS
Spinach	Space	JSS
Spinach	Carmel	JSS
Mustard Mix	Braising/Stir-Fry Mix	JSS
Lettuce Blend	Salanova	JSS
Lettuce Blend	One-Cut	HM
Flowers and Herbs		
Nasturtium	Kaleidoscope	JSS
Borage	Common	JSS
Marigold	Red Gem	JSS
Marigold	Lemon Gem	Territorial
Scarlet Runner Bean	Common	JSS
Calendula	Resina	HM
Dill	Bouquet	HM
Parsley	Giant Italian	HM
Claytonia	Common	HM

Blends:

- 50/50: Spinach & lettuce
- Deep Greens: Mustard mix & spinach
- Romaine Blend: Salanova/One-Cut romaine varieties
- Winter Wonder: Spinach, lettuce, claytonia
- Summer Sensation: Lettuce, dill, parsley, flowers
- Green Zing: Lettuce, nasturtium leaves, arugula
- Power Blend: Arugula, kale, spinach
- Spring Mix: 60/40 lettuce & mustard mix

Variety Selection

Baby Leaf vs. One-Cut/Salanova Lettuce		
	Baby Leaf	One-Cut/Salanova
Harvest	Quick-cut Greens Harvester	By hand
Weed presence	In row	Between row
Planting method	Earthway/Pinpoint seeder	TP production
Desired varieties	Limited to mix	6-8 varieties from each supplier

Pre-Mixed vs Custom Blends (Mustards)

- Braising mix from JSS (\$54/lb)
 - Tatsoi considerably slower than rest of mix components
 - No need to mix/ratio seed before
 - Limited in mix components

Seeding Schedule

- Salanova transplant schedule begins in March for hoop house plantings
- Vacuum seeder used for all pelleted seed (Salanova) for 128 flats
 - Germ chamber 8'x8'x2' can fit 12,000 TPs in 128 flats
 - Avg. production of one head Salanova 1/2lb: 6,000lb potential lettuce in full germ chamber
- Two weeks between TP seeding and planting
- First field planting in late April
- Height of season consists of weekly tasks:
 - Salanova TP seeding
 - Baby leaf greens (arugula, kale, braising mix, spinach) seeding w/ Earthway
 - Salanova transplanting

Greenhouse Salanova Transplant Seeding Schedule 2017

Date	Variety	Crop	Seed Company	Tray or Block Type	Quantity	Initials
3/13/2017	Salanova Mix	Lettuce	JSS & HM		128	3 CT
3/22/2017	Salanova Mix	Lettuce	JSS & HM		128	3 AS
3/28/2017	Salanova Mix	Lettuce	JSS & HM		128	3 AS
4/5/2017	Salanova Mix	Lettuce	JSS & HM		128	3 AS
4/17/2017	Salanova Mix	Lettuce	JSS & HM		128	3 AS
5/2/2017	Salanova Mix	Lettuce	JSS & HM		128	3 AS
5/10/2017	Salanova Mix	Lettuce	JSS & HM		128	3 AS
5/18/2017	Salanova Mix	Lettuce	JSS & HM		128	3 CT
5/30/2017	Salanova Mix	Lettuce	JSS		128	3 AS
6/9/2017	Salanova Mix	Lettuce	JSS		128	3 AS
6/14/2017	Salanova Mix	Lettuce	JSS		128	3 AS
6/20/2017	Salanova Mix	Lettuce	JSS		128	3 AS
6/28/2017	Salanova Mix	Lettuce	JSS		128	3 MH
7/12/2017	Salanova Mix	Lettuce	JSS & HM		128	3 AS
7/18/2017	Salanova Mix	Lettuce	JSS		128	3 MH
8/4/2017	Salanova Mix	Lettuce	JSS & HM		128	3 AS
8/11/2017	Salanova Mix	Lettuce	JSS		128	6 AS
8/17/2017	Salanova Mix	Lettuce	JSS & HM		128	4 AS
8/30/2017	Salanova Mix	Lettuce	JSS & HM		128	6 AS
9/20/2017	Salanova Mix	Lettuce	JSS & HM		128	6 CT

Salanova Field Planting Schedule 2017

Date	Crop	Variety	Direct Seeded (DS) or Transplanted (TP)	Location (Bed ID)	Bed Feet	Rows per Bed	Initials
3/31/2017	Lettuce	Salanova Mix	TP	HH2.5	125	2	CT
4/25/2017	Lettuce	Salanova Mix	TP	FT1.2	60	3	AS
4/25/2017	Lettuce	Salanova Mix	TP	FT2.2	90	3	AS
4/25/2017	Lettuce	Salanova Mix	TP	FT2.3	85	3	AS
5/15/17	Lettuce	Salanova Mix	TP	NE1.1	75	4	CT
5/24/2017	Lettuce	Salanova Mix	TP	NE1.5	75	4	CT
6/3/17	Lettuce	Salanova Mix	TP	NE1.9	75	4	MH
6/9/2017	Lettuce	Salanova Mix	TP	NE1.16	54	4	AS
6/16/2017	Lettuce	Salanova Mix	TP	NE1.18	75	3	CT
6/21/2017	Lettuce	Salanova Mix	TP	NE2.10	92	3	MH
6/30/2017	Lettuce	Salanova Mix	TP	NE2.12	85	3	CT
7/11/2017	Lettuce	Salanova Mix	TP	NE2.17	75	3	AS
7/20/2017	Lettuce	Salanova Mix	TP	NE2.20	75	3	AS
8/9/2017	Lettuce	Salanova Mix	TP	NE2.11	85	3	AS
8/16/2017	Lettuce	Salanova Mix	TP	NE1.15	73	3	AS
8/22/2017	Lettuce	Salanova Mix	TP	NE1.14	74	3	AS
8/31/2017	Lettuce	Salanova Mix	TP	NE1.13	144	3	AS
9/22/2017	Lettuce	Salanova Mix	TP	HH2.6	140	3	CT
10/24/2017	Lettuce	Salanova Mix	TP	HH2.2	126	3	AS

Field Prep

- Tillage of previous crop w/ Rhino Rotovator 60" wide
 - Bed shaper pulled behind tiller makes 42" bed top
- Beds are 60" wheel track center
 - 3 rows for Salanova / 7 rows for baby leaf greens

Greenhouse Prep

- Amendment addition
 - Beef-manure based compost (moving away)
 - Morgan's Nature-Safe 10-0-4
 - Elemental sulfur to drop pH (our water source spikes pH)
 - Greensand for structure & potassium
 - Peanut/blood/feather meal for N
 - Peat for organic matter increase w/o nutrient increase
- Incorporation with BCS tiller attachment
- Raking/bed shaping
- Rows per bed same as field planting

Crop Maintenance

- Row cover used only on brassicas for flea beetle control
- Weeding done in-row by hand
 - Between row using belly-mounted basket weeder

Irrigation

- Field
 - 1" thin-walled PVC (used for buried irrigation systems)
 - Cheaper, opt for thicker if possible
 - Slip-compression couplings between 10' sections
 - Can pop off w/ too much pressure
 - Dirt in couplings makes removal/reconstruction difficult
 - Glued union joints preferred
 - Both impact and wobblers used
 - Wobblers preferred (proved 360 coverage)
 - Risers braced w/ conduit
 - Powered w/ 6HP transfer pump
 - Can run 3 lines @ 200' each
- Greenhouse
 - Mini wobblers from Senninger
 - Can change nozzle based on desired irrigation diameter
 - Designed to be inverted & on low-pressure system
 - Two separate zones due to water pressure

Quick-Cut Greens Harvester

- \$640 Investment
 - \$560 Harvester
 - \$80 Drill

	Hand Harvest	Greens Harvester
Pounds per week	200#	200#
Pounds per hour (1 worker)	20#	100#
Labor Hours per week	10hr	2hr
Labor costs per hour	\$14	\$14
Labor costs for harvest per week	\$140	\$28

- Tool cost of \$640 divided by labor savings of \$112 = 5.7 week payback
- Use of tool frees up labor hours previously consumed by salad harvest
- Allows for time to be devoted to other tasks, or increased salad production
 - Capacity for processing must be congruent with salad harvested

Harvest

- Tools Used:
 - Harvest knives
 - Quick-Cut Greens harvester
 - Plastic bins
- Standard GAP procedures for pre-harvest
 - 4-step tool, harvest bin, and work surface area sanitation process
 - Area of harvest scouted for animal damage, contaminants
- Greens are harvested into food grade plastic bins
- Each variety or “ingredient” in the salad mix is harvested individually by weight
 - Weights determined before harvest on harvest sheet
 - i.e. Arugula may be harvested for both individual blend and for Power Greens blend
- Kept in cooler before washing

Post-Harvest Handling for Greens

- Greens triple washed in cleaned/sanitized wash bins with 50ppm Tsunami
 - 15.2% Peroxyacetic acid and 11.2% hydrogen peroxide
- Dried in converted washer set on spin cycle
 - 5 minutes per bin, stopped and fluffed about halfway through
 - Air-dried on table for additional 2 minutes
- Items are washed separately, then weighed and mixed after drying
 - Weighed out into clean bins
- Storage in cooler in clean food grade bins with plastic covering to prevent further drying
- After drying, mixes are weighed out individually
- Plastic clams are counted and labeled as fits within packshed workflow
- Clams are tared on scale, filled to .32lb

Packages and Labels

- Choose clamshell
 - Order samples from companies for “mock up” of product
 - More square vs more tall
 - Types of closure -- tamper proof is preferred
- Design labels
 - Size and shape are first considerations
 - Lamination type
 - Material type
 - Major considerations are that it is waterproof product, recycled, and the temperature rating of the adhesive or material that adhesives are applied to, such as plastic that will be in refrigerated case for sale
- Companies: Frontier Labels (does not charge by color; black and white OR CMYK colors); Growers Discount (pay by color)
- Develop system for expiration dates
- Organic labeling rules require several items be listed
 - Ingredients
 - Name of processor
 - Address of processor
 - “Certified Organic by...”
- Optional: USDA Organic Seal
- Optional: mark ingredients organic

Example Pricing

- .35 = CLAMSHELL each including shipping + .18 = LABEL each
- Wholesale: \$2.50
- Retail: \$3.99 (equivalent to regional and national suppliers of similar product)
 - \$6.44/lb bulk pricing

Resources

Seeds

- Johnny's Selected Seeds - <http://www.johnnyseeds.com/>
- High Mowing - <https://www.highmowingseeds.com/>

Tools

- Four-Row Pinpoint Seeder - <http://www.johnnyseeds.com/tools-supplies/seeder/four-row/four-row-pinpoint-seeder-9285.html>
- Earthway Seeder - <https://www.smallfarmtools.com/earthway-seeder>
- Jang Single-Row Seeder - <https://www.smallfarmtools.com/jang-single-row-seeder>

Packaging

- Labels - <https://www.frontierlabel.com/>
- Clamshells - <https://www.webstaurantstore.com/>

