

Floral Notes *Newsletter*

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2009 Harvest New England Conference

Harvest New England has announced that its 2009 Agricultural Marketing and Trade Show will be held February 24 - 26 at the Sturbridge Host Hotel in Sturbridge, MA.

"This conference is an excellent opportunity for agricultural producers to learn from some of the finest experts in the field about a diverse range of marketing topics," said Robert Pellegrino, President of Harvest New England and Director of Marketing for the CT Department of Agriculture. "Our last conference attracted over 700 producers from all over New England, who provided extremely positive feedback about the event. We have taken their comments and incorporated them into our planning to make this conference even better."

Two pre-conference workshops - to cover farmers' markets and agritourism - will be held on Tuesday, February 24. The main event kicks off Wednesday morning, February 25, with "The Best of New England" session, featuring a panel of the industry's stars from each of the six states. Mel Allen, Editor of Yankee Magazine, will charm attendees on Thursday morning with stories amassed over the years through his work at the popular publication.

Twenty breakout sessions, an optional half day of farm tours, and a trade show that is expected to draw over 100 vendors, will round out the event. Topics to be covered include working with local officials, website development, community-supported agriculture, virtual marketing, cooperatives, energy conservation, and much, much more.

Harvest New England was created in 1992 by the Departments of Agriculture in the states of Connecticut, Rhode Island, Massachusetts, New Hampshire, Vermont, and Maine. The organization's original objective was to encourage the sale of New England produce to and through large supermarkets.

Vegetable Gardening in a New Light!

Tina Smith
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Whether it is a small back yard (or front yard) garden, patio pots or a community garden, vegetable gardening is making a come-back. Food costs have increased and the salmonella and *E.Coli* scares have made consumers unsure about the food they buy and are focused on healthful lifestyles. As a result, being a “localvore” is in and growing your own is even better. Today’s gardeners have less time than their parents, so are more likely to have smaller gardens. Larger transplants in individual pots, patio pots, trellised plants, mixed planters as well as traditional packs are popular.

Consider adding a few vegetable plants to your spring crop production program using the same enthusiasm for choosing and growing vegetables as you do for flowering plants. Plan to offer old “reliable” varieties, and heirloom varieties along with some new exotic plants and varieties. Whenever possible, select disease resistant varieties to help insure success in the garden. There are so many choices, from gourmet greens and vegetable amaranth (popular in Southern Asia, Africa and West Indies) to yellow cherry tomatoes and an assortment of colored peppers and eggplants. To find new varieties see the All American Selection (AAS) Winners website www.all-americanselections.org/, the National Garden Bureau website www.ngb.org/index.cfm and your favorite seed supply company catalogues. State University trial results can also help you select varieties that will perform best in your area. For example, AAS winners for 2009 include a white eggplant ‘Gretel’ that can be harvested in 55 days and grows to three feet tall and wide, great for containers; a personal sized winter acorn squash called ‘Honey Bear’, also for smaller gardens and a melon called ‘Lambkin’ that is sweet and juicy. Create “edible containers”, by combining flowers and vegetables in mixed planters. Swiss

chard, ‘Bright Lights’ with pretty colored stems in reds, pink, yellow and orange are easily grown and are great for containers or in the ground.

Starting From Seed

With the exception of a few perennial vegetables, vegetable plants are started from seed. Easy to transplant vegetables that are able to absorb water efficiently and form new roots rapidly include beets, broccoli, cabbage, lettuce and tomatoes. Vegetable plants that are a little more difficult to transplant, do not absorb water as efficiently, but form new roots quickly include cauliflower, eggplant, onion and pepper. Vegetable plants that are difficult to transplant include cucumbers, melons and squash.

Production Schedules

Starting seeds too soon, will result in overgrown plants of poor quality. The following are guidelines for growing vegetable bedding plants. Note the number of weeks from seed to sale for packs. This will vary according to different growing conditions across the country and should serve only as a guide.

Cole Crops (Cabbage, Broccoli, Brussels sprouts, Cauliflower)

To prevent premature seeding or bolting, avoid exposing transplants to temperatures below 50°F for long periods (week or more). The cold temperature will cause “buttoning” in cauliflower and broccoli. Any stress or check in growth results in a “wirestem” so that they do not get as well established in the garden.

Eggplant

Eggplants are susceptible to chilling injury and should not be grown below 40°F. Any stress or check in growth will result in tough woody

Crop	Germination temperature	Optimum day production temperature	Minimum night temperature	Weeks from seed to sale
Broccoli	70 to 75 °F	65 to 70 °F	55 to 60 °F	4 to 7
Cabbage	70 to 75	65 to 70	55 to 60	4 to 7
Cauliflower	70 to 75	65 to 70	55 to 60	4 to 7
Cucumber	70 to 75	70 to 75	60 to 65	2 to 3
Eggplant	70 to 80	70 to 80	60	7 to 9
Lettuce	65 to 70	60 to 65	50	3 to 5
Melons	70 to 85	70 to 75	60 to 65	2 to 3
Peppers	75 to 85	70 to 75	60	6 to 8
Summer squash	70 to 85	70 to 75	65	2 to 3
Tomatoes	70 to 80	65 to 75	60	5 to 8

(From Tips on Growing Bedding Plants, Ohio Florists Association)

stems and transplants that will have a tough time getting started later in the garden.

Tomatoes

Tomato seeds germinate best at 70 to 80°F. As soon as there is any evidence of germination, they should be removed from mist and bottom heat. The ideal root-zone temperature is 77-86°F during the first four weeks of growth and 68 to 77°F during the fifth and sixth weeks. Optimal growing-on day temperatures are 65 to 75°F and minimum night temperatures of 60°F.

Peppers

Note that germination is very slow at lower temperatures.

Vine Crops

Cucurbits do not transplant well, and are best to sown in the final container. After germination, excess plants can be thinned.

General Nutrition Guidelines

Vegetable bedding plants can be grown in soilless potting mixes and fertilized with commonly used fertilizers such as 15-0-15 Dark Weather Feed, 15-15-15, 15-16-17 and 20-10-20 or Cal-Mag 15-5-15.

Soil should be tested each month to adjust the fertilizer program and to prevent problems. The optimum pH range for vegetable bedding plants is 5.5 to 6.5.

While plants are in the plug or seedling stage, use a complete water soluble fertilizer at the rate of 50-100 ppm N every time plants are watered and use clear water (no fertilizer) every third watering. Use the lower rate (50 ppm) early and the higher rate (100 ppm) later if the seedlings are to be held in the flat or tray three or more weeks before transplanting. Shortly after transplanting, as plants approach rapid growth, increase the rate to 200 ppm N at every watering, watering with clear water 2 or 3 times in-between each fertilization.

Small, slow-growing plants should receive lower rates or less frequent application until they are well-established. Care should be taken not to over-fertilize vegetable bedding plants because no growth regulators are labeled for use on edible crops.

Nutritional Problems

Early in production, serious nutritional problems are: high soluble salts, trace element toxicities, and ammonium toxicity. Late in production, particularly in cell packs, plants may develop nitrogen deficiency symptoms.

Injury from excess salts seems to be most common shortly after transplanting. Seedlings are much less tolerant than established, rapidly growing bedding plants. Some soilless mixes may contain enough "starter charge" to cause

excess salts problems in the first few weeks after transplanting, particularly when a water-soluble fertilizer is also applied. This problem can be aggravated by excessive drying, poor drainage, and uneven watering. Roots of plants should be checked often and regular soil tests conducted to identify and prevent problems. Often nutrient deficiencies and root diseases cause the same symptoms.

Iron (Fe) and/or manganese (Mn) toxicity can occur in tomato plants. Symptoms appear as numerous small dark spots and mottling of the foliage. The potential sources of excess Fe and Mn are: trace element fertilizers in the mix, water-soluble fertilizers with elevated trace elements levels, and sometimes, the irrigation water. Low growth medium pH aggravates the problem by increasing Fe and Mn availability. Toxicity can be avoided by keeping the pH in the range of 5.8 – 6.0 and by using fertilizers with lower trace element levels.

Ammonium toxicity is less common than in the past, because most growers currently use water-soluble fertilizers that supply about 50/50 ammonium and nitrate to fertilize plants in soilless media. Tomato, eggplant, and pepper are most sensitive to ammonium nitrogen, but many other vegetable bedding plants can be harmed if ammonium becomes excessive. Too much ammonium during the early spring (February or March) in low light and cool media conditions can be toxic to plants.

Managing Plant Height

Since growth regulators are not registered for vegetable bedding plants, plant height is managed by adjusting water, temperature and fertilizer levels, or by physically brushing the plants. Research has shown that mechanical stress reduces stem elongation and maintains plant height. Growers can mechanically stress plants by brushing transplants twice daily for 18 days using about 40 strokes back and forth with a sheet of plastic or foam tube suspended from an irrigation boom. This can result in as much as a 30% reduction in stem elongation. Vegetable plants such as tomatoes, eggplants and cucumbers have responded to this method of

height control. Note that this technique has damaged some tender plant species such as peppers and could also enhance the spread of disease.

Water stress is another tool to manage plant height. Maintaining plants on the dry side limits cell expansion and plant growth. Close attention is needed to avoid permanent damage such as leaf burn or even plant death.

Withholding nutrients can also be used to prevent stretching. Low phosphorus fertilization is especially effective for tomatoes. If carefully managed, a mild to moderate phosphorus (P) deficiency may result in a desirable reduction in growth with no foliar symptoms of P deficiency.

Organic Production

Using organic production practices for the organic market is another option for growing vegetable plants. In doing so, plant must be grown according to national organic standards by The U.S. Department of Agriculture. For more information see:

<http://www.ams.usda.gov/nop/Consumers/brochure.html>

Whether growing conventional or organic, plan to grow a few vegetable plants as part of your crop mix during 2009.

References

Pundt, L. and T. Smith. 2007. Growing Vegetable Bedding Plants.

http://www.umass.edu/umext/floriculture/factsheets/specific_crops/veg_bedpl.htm

Tips on Growing Bedding Plants. 1994. 3rd ed., The Ohio Florists' Assoc.

Helpful Websites on Organic Production

Biernbaum, J. 2006. MSU Organic Greenhouse Transplants; Illinois Organic Conference.

<http://www.ipm.msu.edu/pdf/Biernbaum-Transplants.pdf>

ATTRA - National Sustainable Agriculture Information Service

<http://www.attra.org/horticultural.html/Greenhouse>

The National Organic Program Guidelines

<http://www.ams.usda.gov/nop/indexIE.htm>

2009 University of Connecticut Easter Lily Schedule

Richard J. McAvoy

Weeks Prior to Easter	Date	Forcing Method	
		Case-Cooled	Pot-Cooled (CTF)
25-24	Oct 19-26	Bulbs dug, shipped & in hand by mid-Oct.	
23	Nov 2	Start bulb programming as soon as bulbs arrive but no later than 23 weeks before Easter. <i>Cool at 40-45F for 6 weeks</i>	
20	Nov. 23	---	<i>Pot & allow roots to grow at 60-62F for up to 3 weeks</i> <i>Cool at 40-45F for 6 weeks</i>
17	Dec 14	Pot no later than 17 weeks before Easter Force in greenhouse at 60-62F in pot.	---
14	Jan 4	<i>Roots visible by week 15 & shoots emerge by week 14.</i> <i>Start fertilizing & keep moist.</i> <i>Only use insurance lighting on bulbs that did not receive the full 6-weeks of cooling. As soon as shoots emerge provide 1-week of lighting for each week of cooling needed to reach 1000-hours.</i>	Force in greenhouse (at 60-62F) no later than 14 weeks before Easter.
13	Jan 11	1-2" tall. Keep lilies moist & use fungicide drench as needed.	
12	Jan 18	2-3" tall. Bud initiation coincides with stem root development. Run 60-62F-day/ nights until bud set is complete.	
11	Jan 25	3-4" tall. Apply growth regulator when 3-5" tall. Bud initiation nearly complete, maintain temperature below 65F until done.	
10	Feb 1	Check for bud set. Begin leaf counting & graphical tracking. Keep greenhouse cool if ahead of schedule.	
9	Feb 8	5-6" tall. Adjust temperatures as needed. Space lilies to avoid yellow leaves & stretching. Apply Fascination (10ppm) to lower leaves 7 to 10 days before visible bud if leaf yellowing is evident.	
8	Feb 15	Check for aphids & root problems. Apply systemic pesticides sometime during weeks 10, 9, or 8. Soil test and if leaf scorch is evident, use calcium nitrate for balance of schedule.	
7	Feb 22	7-8" tall. Lilies reach half final height at 42 days before sale. Buds can be felt. If buds are visible on early plantings run 60F until finish.	
6	Mar 1	35 days to sale. Buds should be visible no later than 30 days prior to sale. Grade for uniformity as buds become visible.	
5	Mar 8	Buds 1/2-1" long. Re-apply Fascination (10 ppm) to lower leaves if necessary.	
4	Mar 15	Buds 1-1 1/2", some bending down.	
3	Mar 22	Buds 1 1/2-2" long. If aphids present, use a total release smoke or aerosol.	
2	Mar 29	Buds 2 1/2-4" long, some turning whitish. Stop fertilizing just before sale & apply clear water once. Cool lilies at 35-45F to hold. Prior to cold storage, spray Fascination (100 ppm) over the entire plant.	
1	Apr 5	Ready to sell. Shade lilies once removed from storage. If needed, use EthylBloc prior to shipping.	
0	Apr 12	Easter 2009	

COMMENTS ON THE 2009 EASTER LILY SCHEDULE

Expectations for 2009: Easter 2009 falls on April 12. This is considered a mid-date Easter which affords plenty of time to complete the entire 23-week lily forcing schedule.

Pot-cooled bulbs are normally potted & held for three weeks at 63F before the six weeks of bulb cooling (at 40-45F) begins (see the 2009 Easter Lily schedule for details). The bulbs then require 14 weeks of greenhouse forcing. This entire process requires 23 weeks from initial potting to Easter. This is the same process is used for both naturally cooled or CTF bulbs.

Case-cooled bulbs require six weeks of cooling followed by 17 weeks of greenhouse forcing to flower in time for Easter. Be sure that commercially case-cooled bulb arrive & are planted by Dec 14, 2008. If you cool your own bulbs, start the Nov. 2 (23 wks before Easter). Insurance lighting should not be needed this year but can be used if you can't complete the full 6-weeks of bulb cooling.

Insurance lighting: Provide insurance lighting if you know or suspect that bulbs have not received the entire six weeks of cooling. Insurance lighting refers to night break lighting used to produce a long day photoperiod. When insurance lighting is used immediately following shoot emergence it will produce the same effect as bulb cooling or vernalization. Therefore, insurance lighting can be used to substitute for inadequate bulb cooling. Provide one day of insurance lighting for each day of lost cooling. Incandescent, fluorescent, or HID lighting in excess of 10 f.c. from 10 pm to 2 am daily will provide the necessary night break.

Fertigation: Start fertilizing with soluble formulation when lilies emerge and continue to within 7 days of sale. Combine calcium nitrate (3 parts) with potassium nitrate (2 parts) to make a 15-0-18 soluble fertilize, or use a commercial 15-0-15 formulation. If phosphorus was not added to the medium, 20-10-20 can be used on an alternating basis with a 15-0-15. Fertilizer rates should range from 200-400 ppm. Do not allow medium EC to exceed 3-3.5 mmho/cm based on a Saturated Media Extract. Stop fertilizing just before sale. Provide one clear watering before lilies are shipped - this will reduce salt levels in the potting medium and maximize lily-keeping quality. Do not withhold water or fertilizer to slow development. Do not over water (i.e. water too frequently) or root rot problems may occur.

Decrease Leaf Yellowing and Delay Flower Senescence: To prevent early-season (7 to 10 days before visible bud) & mid-season (7 to 10 days after visible bud) leaf yellowing, spray Fascination at 10/10 ppm. (Note: Fascination contains two active ingredients and recommendations include the concentration of each). Apply only to lower leaves & cover thoroughly. To prevent late-season leaf yellowing and post-harvest flower senescence, spray 100/100 ppm to thorough cover all foliage & buds. Apply when buds are 3 to 3 1/2" long & NOT MORE than 14 days before shipping or cooling. Protects leaves from yellowing for up to 14 days. Note: Side effects include increased stem stretch. Avoid direct contact of spray to immature leaves during early- & mid-season applications.

Disease and pest control: Before planting, clean bulbs of debris removing any damaged scales, especially scales that show evidence of infection. Once potted, root rots associated with *Rhizoctonia*, *Fusarium*, and *Pythium* are a concern. Drench immediately with Banrot, a broad-spectrum fungicide, or you can treat to control these diseases separately by selecting from the fungicides specifically registered for *Rhizoctonia*, *Fusarium* and *Pythium* control on lily. Materials registered for *Rhizoctonia* and/or *Fusarium* include 26GT, 26/36, Contrast (*Rhizoctonia*), Sextant, and Terraclor WP (*Rhizoctonia*). Materials registered for controlling *Pythium* include Alude, Banol, Subdue Maxx, Truban WP and Truban EC. Check with manufacturers regarding compatibility when tank mixing fungicides for *Pythium* with *Rhizoctonia/Fusarium* controlling materials. Fungicides may need to be re-applied later in the crop, check labels for guidance.

Aphids, fungus gnats and bulb mites are a major concern. Use only smokes or aerosols once in bud. Many chemicals are listed for aphid control, including, Safari, Celero, Flagship, Tristar, Marathon, DuraGuard, Distance, Enstar II, Preclude TR, Tame, Thiodan smoke, Ultrafine Oil, Insecticidal Soap, Talstar and Endeavor. Fungus gnats can be controlled with many of these same chemicals as well as Citation, Adept, insect parasitic nematodes (Nemasys, NemaShield, Scanmask) and Gnatrol. Bulb mites, *Rhizoglyphus robini*, represent one of the more troublesome insect pests on lilies. Duraguard is labeled as a drench for soil borne organisms that may include bulb mites. Bulb mites are more likely to attack physically damaged bulbs – so be sure to control fungus gnats and handle bulbs gently.

Note: Registration of pesticides varies by state so consult and follow labels for registered uses. To avoid any potential phytotoxicity or residue problems, spot test first before widespread use. No discrimination is intended for any products not listed.

Controlling Lily Height: Use A-Rest, Chlormequat E-Pro, Concise, Cycocel, Topflor or Sumagic as needed when shoots are 3-5" tall. Split applications provide the best results. You can apply any of the PGRs at 1/4 to 1/2 normal rate, as needed, to control height. Reduce the concentrations of Sumagic used when combined with DIF. Use DIF, or cool morning DIP, to control lily height. Equal day/night temperatures, high night/low day temperatures or cool morning temperatures will keep lilies short.

Lily storage: Lilies can be stored for up to 10 days in the dark at 35-45F when buds turn white but before they open. Spray for Botrytis control prior to moving lilies to cold storage. Materials registered for botrytis control on lilies include 26GT, 26/36, Daconil, Exotherm Termil, Sextant, and Protect DF. Follow label directions. Water Easter lilies thoroughly before starting cold storage. After lilies are removed from the cooler, place in a shady location to avoid excessive wilting.

All agrichemical/pesticides listed are registered for suggested uses in accordance with federal and Connecticut state laws and regulations as of the date of printing. If the information does not agree with current labeling, follow the label instructions. The label is the law. Contact the Connecticut Department of Environmental Protection for current regulations. Where trade names are used for identification, no product endorsement is implied nor is discrimination intended.

Heating with Bioheat and Waste Oil

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Increasing interest in alternate fuels has led to development of heating equipment that will utilize fuels other than the conventional oil and gas. Biodiesel is one that can be produced in large enough quantities that it has an impact on total consumption in the U.S. Waste oils from vehicles, machinery and cooking are others that have high heat value and can fit into many greenhouse operations.

Bioheat

Biodiesel is an alternative fuel produced from vegetable oils and animal fats. Soybean oil is the most common feedstock but other sources, such as, rape seed (canola), mustard seed, com oil, coconut oil, sunflower seed, recycled cooking oil and rendered animal fats can be used. Biodiesel is made by reacting a wood or grain alcohol, such as methanol or ethanol, with the feedstock and with the help of a sodium hydroxide catalyst the reaction produces biodiesel and glycerin.

To have production consistency, the American Society of Testing Materials has established quality standards. Pure biodiesel is designated B100. It has a heat value of 118,170 Btu/gal, about 8% less than No. 2 diesel. This is due to about 10% less carbon.

For use as a fuel in the transportation industry, a blend of 20% biodiesel to 80% petrodiesel (H₂O) is fairly standard. For use as a heating fuel a blend of 2 to 20% biodiesel with No. 2 fuel oil is acceptable in most existing heating systems without any modification. This is referred to as bioheat.

Many fuel oil dealers across the U.S can now supply a bioheat blend of up to 20%. There are several reasons for not going higher than 20% at this time. Biodiesel has a higher viscosity than fuel oil. This means that its pour point (the temperature below which the fuel will not flow) is higher. The pour point for No. 2 fuel oil is -11°F

and for B20, 0°F. In cold climates, bioheat fuel needs to be stored inside a building.

Biodiesel is also a solvent. This can present some problems in an existing heating system until all the sludge is removed from the tank and supply lines. The filter may have to be changed several times until everything is cleaned up. Once the system is clean, the burner will probably be more efficient. When ratios of greater than 30% are used, the rubber seals in the fuel pump can break down causing leaks. Manufacturers are now incorporating better seals in new pumps to overcome this problem.

Bioheat is environment friendly

Although bioheat fuel is generally 5 to 10% more expensive than No.2 fuel oil depending on the blend ratio, it is cleaner burning, biodegradable and reduces hydro and particulate emissions. Research at nationally recognized testing agencies has shown that nitrogen oxide emissions are frequently reduced up to 20% and sulfur oxide, up to 89%. Smoke levels are reduced with bioheat resulting in less maintenance.

Biodiesel gives a much better energy balance than petroleum fuels. Typically it takes more energy to extract, process, and transport fuel oil to your greenhouse than the heat that is generated. With biodiesel made from soybeans, 3.2 units of biodiesel are produced for every unit consumed in production. The most recent plants put on line are now achieving a ratio of 7 to 1.

Further information on biodiesel and bioheat including handling and burning, storage, suppliers and distributors is available at www.biodiesel.org.

Waste/Used Oil

Another category of fuels that is becoming popular as a heat source for greenhouses is oil that is a byproduct of other processes. These include crankcase oil, transmission fluid, cutting oil,

hydraulic fluid, antifreeze, cooking oil and certain solvents. They have the advantage of being inexpensive as compared to No. 2 fuel oil and are readily available in some areas. Burning is an approved method of getting rid of this material.

Some growers set up collection routes that include garages and oil change service centers, vehicle dismantlers, machine shops and contractors that do heavy equipment repair. Other growers have developed a relationship with fast food restaurants and institutional kitchens that have considerable used cooking oil. Some growers just purchase waste oil that has been collected by a recycling firm.

Handling these oils can present some problems. You will need drums or tanks to collect the oil. In large quantities it has to be pumped. Once you have it at the greenhouses it will need to be filtered and stored. In most cases the tanks should be placed in a containment area as a precaution against a spill.

The oils can contain many impurities including metal chips and filings, lead from bearings, sludge, gasoline, potato chips and water. Usually a 40 or 50 mesh strainer will remove most of the solids. The material may be considered a hazardous waste and have to be disposed of according to Environmental Protection Agency regulations. This can be expensive if it has to be burned at an incinerator designed to handle hazardous waste.

Burning the oil will require a furnace or boiler designed to handle it. Several companies have developed burners that use compressed air to get the atomization of the fuel. Some also use a

preheater as some fuels have a higher viscosity than fuel oil. Burner size is limited by EPA to no more than 500,000 Btu/hr input. Some growers have installed multiple units to get a higher heat output. All of these heaters will burn No. 2 fuel oil or kerosene if you run out of waste oil.

To avoid any sludge pickup, the intake pipe and strainer to the burner should be set 3 to 6 inches above the bottom of the supply tank. An oil filter should be installed just before the burner.

A compressed air supply of 2 to 4 cubic feet per minute at 15 to 40 psi is usually required depending on the output of the burner. This can be from an integral compressor or from a separate air supply.

The following are companies that manufacture furnaces and boilers that will burn waste oil:

Clean Burn, Leola PA - www.cleanburn.com

Compuheat, Inc., North Ridgeville OH
www.wasteoilburners.us

Firelake Manufacturing LLC, Mt. Crawford VA
www.firelakemfg.com

Norki Energy Systems, Inc. - Poughkeepsie NY -
www.norki.com

Siebring Manufacturing, Inc. George IA -
www.siebringmfg.com

The use of alternate fuels such as biodiesel and waste oil can go a long way to reducing our dependence on foreign oil. As compared to other alternatives such as wood and coal, oil fuels require less work and maintenance.

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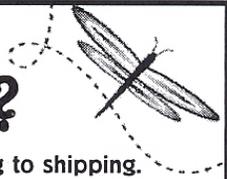
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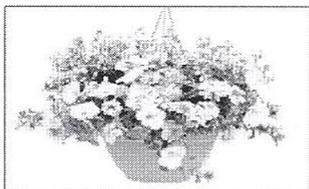
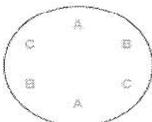
Pleasant View's *Combination Calculator* makes Combination Planning Easy!

1. Go to www.pwpg.com
2. Select container, size, season & quantity
3. Your *Liner Order* calculates automatically!

Combination Calculator

Bridal Shower

Qty:



- A Safari® White
Nemesia
Qty: 2
- B Supertunia® Mini White
Petunia
Qty: 2
- C Tukana® White
Verbena
Qty: 2

Combination Details	
Season	Spring
Exposure	Sun
Container Size	12 inches
Color Scheme	Monochromatic
Container Style	Hanging Basket



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Your Combination List

Combination	Qty
Bridal Shower Season: Spring Container Style: Hanging Basket Exposure: Sun	125
Little Boy Blue Season: Spring, Summer Container Style: Hanging Basket Exposure: Sun	150

Your Liner Order

Variety	Combination(s)	Liners Required	Tray Size	Liner Trays Required	Liners Leftover
Safari® White Nemesia	Bridal Shower	250	84	3	2
Supertunia® Mini Blue Veined Petunia	Little Boy Blue	300	84	4	36
Supertunia® Mini White Petunia	• Bridal Shower • Little Boy Blue	550	84	7	38
Superbena® Purple Verbena	Little Boy Blue	300	84	4	36
Tukana® White Verbena	Bridal Shower	250	84	3	2
--	--	1,650	--	21	114
Total Liner Trays Required for Order: 21					

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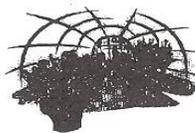
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