



NEW BOARD OF DIRECTORS APPOINTED AT NAMDEVCO



(L-R) Dr. Rohanie Maharaj, Ms. Lillawatti Rastogi, Mr. Robert Ramsamooj (Chairman), Senator Vasant Bharath, Ms. Stacy Barran, Mr. Suresh Kowlessar and Dr. David Dolly

On December 8th, 2010, six persons were appointed by the Minister of Food Production, Land and Marine Affairs, Senator the Honourable Vasant Bharath, to the Board of NAMDEVCO for a two year term. At the swearing in ceremony, Minister Bharath told the Board that *"It is imperative that we put the infrastructure in place to grow the agriculture sector and reduce our food imports. You are the ones to provide guidance in the formulation and implementation of policy and procedure."* The profiles of the Board members are listed below and on page 12.



Mr. Robert Ramsamooj (Chairman) obtained his Bachelor of Arts in Economics from York University, Canada and has extensive experience in the business arena. Mr. Ramsamooj's expertise in business management will add value to NAMDEVCO's programmes.



Dr. Rohanie Maharaj is a graduate of UWI in Natural Sciences (B.Sc. Hons.) and Food Technology (M.Sc. & M. Phil). She holds a Ph.D. degree in Food Science and Technology specializing in Food Processing/Postharvest Technology from the Université Laval in Québec, Canada. She is currently employed at the University of Trinidad and Tobago (UTT), as an Associate Professor in the Biosciences, Agriculture and Food Technologies (BAFT) Unit.

Prior to working at UTT, she was a Regional Director of Quality Assurance and Regulatory Affairs at Johnson & Johnson Caribbean and a Board member for over 7 years.

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Green Vine

is a monthly bulletin of the National Agricultural Marketing and Development Corporation (NAMDEVCO). It provides information to strengthen the managerial and technical capacity of our agribusiness stakeholders and market intelligence in fresh produce and seafood at wholesale, retail and export markets.



Dry Season Vegetable Production



Currently, many farmers will be preparing for vegetable production in the upcoming dry season. In the year 2010, Trinidad and Tobago was faced with an extremely harsh dry season, with drought like conditions, which severely affected agricultural production. Learning from that experience, there are a number of activities that farmers should undertake to prepare for dry season production. In this issue of the GreenVine we will highlight both field and management practices that can contribute to successful dry season production.

Field Practices

Bush Fires

Bush fires are very common during the dry season, some of them accidental and some intentional. Bushfires can cause entire crops to be destroyed resulting in loss of farmer income.

Farmers can reduce the risk of crops being destroyed by fire by simply clearing a fire trail around the farming plot. A fire trail is a gap in vegetation or other combustible material that acts as a barrier to slow or stop the progress of a bushfire or wildfire. In determining the size of the clearance required, farmers must take into consideration general wind direction and velocity, topography and type of vegetative coverage on adjacent lands.

Fires that are intentionally set should be closely monitored. Persons should stay onsite until the fire is completely extinguished and must keep an emergency supply of water available. It is recommended that a fire permit should be obtained from the Fire Services before starting any fires, for example burning of rubbish etc.

Land Preparation



For the best impact, farmers should leave their plots to dry out a bit before attempting land preparation. If the soil is too moist, the weight of the tractors can contribute to soil compaction and the formation of hard pans. A hard pan is a distinct soil layer that is largely impervious to water. It can impede drainage as well as the penetration of plant roots. This can affect crop performance and optimum yields may not be realised.

Weed Management



It is advisable to use some form of chemical weed control prior to land preparation. After land preparation, a pre-emergent herbicide is recommended prior to planting. This will help to reduce the quantity of weeds present during the crop growth.

Maintenance of Waterways and Ponds

Maintenance of waterways and ponds should be a continuous activity during the dry season. They should be cleared of debris and silt deposits at the end of the rainy season to allow for maximum water storage for the dry season.

Management strategies

The Water and Sewerage Authority (WASA) is advising its customers to conserve water. Farmers should take the necessary steps to ensure the efficient management of water resources to produce a profitable crop. Some strategies for water conservation include the following:



Irrigation

The use of drip irrigation allows for better control of water as opposed to furrow irrigation, splash irrigation and sprinklers. It is necessary to understand the water requirements of the crop. Different stages of growth have different water requirements and irrigation schedules should take this into account. In some instances, the farmer can use this information to decide whether to irrigate or not, saving the water for a more critical time. Ideally, irrigating should be done early in the morning when the rate of evapo-transpiration is the lowest, thereby increasing the water use efficiency by the plant.

Mulching

In Trinidad and Tobago, the use of plastic mulch is increasing in popularity both as a water conservation tool and for weed management. Plastic mulch is easily acquired at any major agro-shop. It is advisable that it is installed after final land preparations and running of irrigation lines are completed.

Drip lines provide greater precision watering



The mulch is sold in rolls, which is then laid out and staked in the fields. Holes are then cut in the plastic according to the required plant spacing. Experience has shown that the use of plastic mulch prolongs the life of the crop in the fields and contributes to increased plant vigour when compared to unmulched plants.

LHS - Mulched Plants
RHS - Unmulched



*Experimental plot
using
Plastic Mulch*

Mulched plants are larger and show more vigour

Scouting for pests



Pest Management

Certain pests are more prolific in the dry season than the wet season. Mites, aphids and whiteflies are more abundant in the dry season and affect crops such as the Solanaceous (melongene, tomato, pepper) and Brassica (cabbage, cauliflower) families. Farmers should take a proactive approach to the control of these pests since they can cause significant yield reduction and result in reduced profits to the farmers. One way to do this is by crop monitoring. Crop monitoring is important to detect the presence of any potential insect or disease problems as well as to determine what control strategies to apply and when. Frequent observations of the crop are important to recognize plant problems early, before they get out of hand or cause economic loss.

Watermelon

PRODUCTION GUIDE

Watermelon (*Citrullus lanatus*) belongs to the Cucurbitaceae family, which includes cucumbers, pumpkins, squash and cantaloupe. In Trinidad, some of the more popular varieties grown include: Sentinel, Top Gun, Palladin, and Mickylee. These varieties all have red flesh.

Soil

Watermelons grow best in fertile, well-drained and sandy loam soils. When planted on very heavy soils, the plants develop slowly, and fruit size and quality are usually inferior. Fine sands produce the highest quality melons when adequate fertilizer and water are provided. A slightly acid soil with a pH of 5.0 to 6.8 is ideal for watermelons.

Crop Establishment and Spacing

The crop can be either direct seeded or transplanted. Watermelons traditionally have been spaced 6 to 8 ft (1.8 to 2.4m) between hills on bare ground without irrigation. With irrigation, use a spacing of 5 to 6 ft (1.5 to 1.8m) between hills. With plastic mulch and trickle irrigation, use an in-row spacing of 3 ft (0.9) and between-row spacing of 6 to 8 ft.(1.8-2.4m)

Irrigation

Watermelon needs adequate irrigation to consistently produce high yields and quality fruits. The flowering and fruiting stages of the crop are most sensitive to water shortages. Sandy soils will need to be irrigated more frequently than soils with a high clay content.

Fertilizer requirements

The only way to accurately manage soil fertility is to have the soil tested. Based on the soil test results the following amounts of P₂O₅ and K₂O are recommended.

Phosphorus (P) per acre

When test shows	0-19	20-39	40-69	70-99	100+
Add P ₂ O ₅ /ac	100	75	50	25	0

Potassium (K) per acre

When test shows	0-99	100-149	150-199	200-249	250+
Add K ₂ O/ac	250	150	100	50	0

For watermelon production, the maximum recommended amount of nitrogen (N), phosphorus (P) and potassium (K) is 120 pounds per acre (54kg/0.4 ha).

Rain and overhead irrigation can leach nutrients from the soil, particularly N and K. All required phosphorus can be applied preplant and should remain available throughout the growing season, because it is relatively immobile in the soil.

Weed Control

Weeds are controlled either manually by hand weeding or removal of the weed via an implement or by chemical means. Several pre-emergence herbicides are available that will control germinating broadleaf weeds and grasses in the watermelon crop if used properly.

Chemicals are economical when used as narrow band applications in the planted row or between rows before vines begin to run.

Pest and Diseases

Watermelons are susceptible to several pest and diseases that attack the roots, foliage, and fruit. A preventive program that combines the use of cultural practices, genetic resistance, and chemical control as needed usually provides the best results.

Major Pests of Watermelon

Whiteflies (*Bemisia tabaci*)



Whiteflies affect the crop directly by feeding and by acting as a vector of viruses. They can cause plant distortion and discoloration by sucking plant sap, which can cause leaves to turn yellow, appear dry, or fall off plants.

Proper weed management and the use of appropriate insecticides (such as Imidacloprid, Acetamiprid) at recommended rates, combined with good cultural practices, such as removing infected plants will assist in proper management of whiteflies.

Thrips (*Thysanoptera* spp.)



Thrips are small (1/16 in/ 1.5mm) elongated insects usually found clustered in flowers and on the underside of leaves, especially near the terminal growth of the vines. Adult and nymph thrips scrape the surface of the leaves and fruit with their mouthparts and feed on the exuding sap leaving surface scars. Systemic, targeted insecticides applied at transplanting will be effective in controlling thrips for about 35 days.

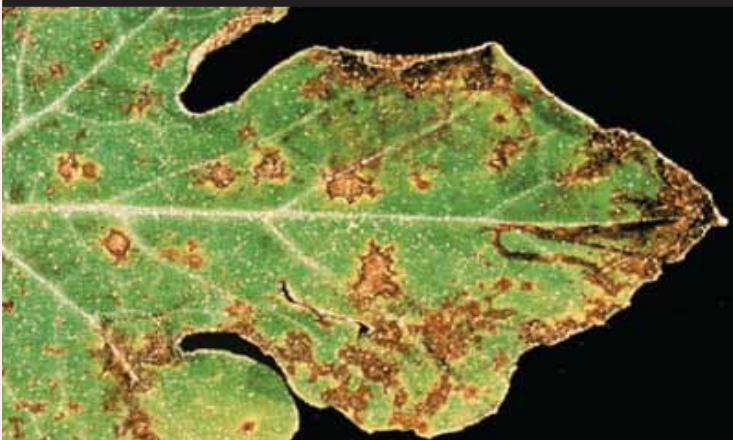
Cucumber Beetles (*Diabrotica* sp.)



Cucumber beetles feed directly on young plants, blossoms, and fruit, resulting in reduced yield and unmarketable fruits. They also vector bacterial wilt, which is caused by *Erwinia tracheiphila*, a particularly important disease of watermelons. Imidacloprid and foliar sprays offer reduced risk pesticides and systemic control.

Diseases Affecting Watermelon

Anthracnose (*Colletotrichum* spp.)



Anthracnose symptoms first show up in older leaves as water-soaked or yellowish areas that enlarge rapidly and turn tan to reddish brown or black. These areas become dry and tear away, typically giving the foliage a ragged appearance. Cultural control measures include the use of disease free seeds, good field sanitation and crop rotation. Fungicides such as copper base formulations are also useful.

Gummy Stem Blight (*Mycosphaerella melonis*)



Symptoms appear as greyish-green, circular spots between the veins in the leaves which turn a dark brown to black with age. This disease spread begins in the center of the plant and spreads outward. Lesions develop first on the vines at the nodes. Stem tissue often cracks and characteristic gummy ooze exudes from the wound. Infected vines eventually die. The application of a systemic fungicide during the early stages of growth provides some form of control.

Yields

Yields are dependent upon the variety, production system and season. However, yields can range from 10,000-45 000 lbs per acre.

Maturity Harvesting Indices

Watermelon reaches harvest maturity from sixty five (65) to eighty five (85) days after planting, depending upon the cultivar, and local growing conditions. Look for a combination of these signs of maturity for best results:

- ▶ Colour change from green to brown on tendrils on vines nearest the fruit
- ▶ The ground spot on the belly of the melon has changed from white to light yellow.

Wholesale Prices and Volumes at the Northern Wholesale Market

	2008	2009	2010
Price (\$/kg)	5.77	5.30	5.18
Volume (kg)	524,018	876,622	744,684

REVIEW OF DECEMBER WHOLESALE FRESH PRODUCE PRICES AND VOLUMES

Root Crops



Item		Prices		% Change	Volumes		% Change
		Nov - 10	Dec- 10	Nov/Dec	Nov- 10	Dec- 10	Nov/Dec
Carrot	kg	9.15	8.01	-12%	148,305	151,117	2%
Cassava	kg	4.49	4.35	-3%	47,027	50,050	6%
Dasheen (Local)	kg	12.25	9.90	-19%	8,757	16,338	87%
Eddoes (Imported)	kg	5.65	7.97	41%	11,336	38,713	242%
Sweet Potato (Local)	kg	7.27	8.71	20%	43,258	71,783	66%
Ginger	kg	21.18	24.67	16%	29,788	26,944	-10%
Yam (Common)	kg	4.92	4.62	-6%	3,750	4,902	31%

Condiments & Spices



Item		Prices		% Change	Volumes		% Change
		Nov - 10	Dec- 10	Nov/Dec	Nov- 10	Dec- 10	Nov/Dec
Celery	bdl	25.39	29.49	16%	13,347	14,916	12%
Chive	bdl	33.40	44.61	34%	13,755	14,427	5%
Hot Pepper	kg	48.76	34.88	-28%	13,833	19,602	42%
Pimento (M)	kg	31.15	33.42	7%	3,188	2,878	-10%

Leafy Vegetables



Item		Prices		% Change	Volumes		% Change
		Nov - 10	Dec- 10	Nov/Dec	Nov- 10	Dec- 10	Nov/Dec
Patchoi	bdl	4.22	6.30	49%	30,373	16,557	-45%
Spinach	bdl	3.46	5.35	55%	20,706	8,175	-61%
Cabbage (Local) (Gn)	kg	6.61	7.01	6%	76,683	68,796	-10%
Callaloo bush (open)	bdl	3.34	3.17	-5%	40,500	39,650	-2%
Callaloo bush (roll)	bdl	4.37	4.11	-6%	13,280	12,350	-7%
Lettuce (M)	Head	4.32	4.60	6%	13,920	18,850	35%

Vegetables



Item		Prices		% Change	Volumes		% Change
		Nov - 10	Dec- 10	Nov/Dec	Nov- 10	Dec- 10	Nov/Dec
Bodi Beans	5 lb bdl	25.39	33.81	33%	12,278	8,407	-32%
Cucumber	kg	4.71	5.39	14%	113,696	102,239	-10%
Melongene (M)	kg	5.91	11.29	91%	5,927	6,257	6%
Sweet Pepper (M)	kg	10.38	17.48	68%	10,011	8,319	-17%
Tomato (M)	kg	18.31	17.74	-3%	34,895	30,065	-14%
Pumpkin	kg	4.55	4.77	5%	111,041	127,778	15%

Root Crops

Overall, both prices and volumes increased for root crops by 5% and 23% respectively. The increased volumes were mainly due to Eddoes (Imported) and Sweet Potato (Local) whose combined volumes rose by

almost 56,000 kg in December, their prices also increased by 41 and 20% respectively. Price reductions were noted for Carrot (12%) and Dasheen (19%) as volumes rose by 2 and 87% respectively.

Condiments and Spices

With the exception of Hot Pepper, prices of all items in this category increased in the range of 7 to 34%, as overall volumes rose by 17%. The increased volumes is attributed to Hot Pepper which increased by approximately 6,000kg from the previous month.

This resulted in a price reduction (28%) as Hot Pepper prices fell from an average price of \$886/40lb bag to \$634/40lb bag. The price of Chive increased by 34% as supplies rose by 5%, reflecting increased demand for the Christmas season.

Leafy Vegetables

The volume of Leafy Vegetables entering the Northern Wholesale Market fell in December in the range of 2 to 61%, prices increased by an overall 16%. The prices of Patchoi and Spinach increased

by 49% and 55%, as their supplies fell by 45% and 61% respectively. Prices of the other items in this category were relatively stable during the month of December.

Vegetables

Overall, there was a 31% increase in the price of vegetables, volumes fell by 2%. Within this grouping, three items, Bodi Beans (33%),

Melongene (M) (91%) and increases. Sweet Pepper (M) (68%) showed the most significant price increases.

Fruits

The prices of all items in this category were relatively stable for the month of December. Volumes of all fruits fell in the range of 9 to 66%.

The most significant reduction in volumes was noted for Watermelon which fell from 53,000 kg in Nov. to 18,000kg in Dec., a difference of 35,000kg.

Fruits



Item		Prices		% Change	Volumes		% Change
		Nov - 10	Dec- 10	Nov/Dec	Nov- 10	Dec- 10	Nov/Dec
Banana (Imported)	kg	8.18	8.11	-1%	93,640	82,256	-12%
Papaya	kg	6.45	6.06	-6%	21,238	14,769	-30%
Pineapple	kg	9.24	8.79	-5%	49,556	45,314	-9%
Watermelon	kg	6.18	5.85	-5%	52,844	18,008	-66%

USA TERMINAL MARKETS WHOLESALE PRICES (US\$) DECEMBER 2010



	Miami Terminal Market			New York Terminal Market		
	Pumpkin (50 lb Bag)	Hot Pepper (8 lb Box)	Papaya (35 lb Box)	Pumpkin (50 lb Bag)	Hot Pepper (8 lb Box)	Papaya (35 lb Box)
Belize			\$16.00 - \$21.00			\$25.00 - \$28.00
Costa Rica	\$16.00 - \$19.00			\$16.00 - \$24.00		
Dominican Republic	\$15.00 - \$17.00	\$13.00 - \$16.00	\$19.00 - \$21.00		\$18.00	
Florida	\$12.00 - \$15.00				\$16.00 - \$18.00	
Guatemala			\$17.00 - \$21.00			
Jamaica	\$23.00					
Mexico						\$25.00 - \$32.00
Netherlands					\$28.00 - \$30.00	
Panama	\$13.00 - \$17.00					

Hot Pepper - Habanero/Scotch Bonnet Type; Papaya - Maradol Type

Source: USDA Market News Service. NOTE: The prices quoted above are the prices received by the importer/distributor in the respective markets. An exporter from Trinidad and Tobago would receive about 65% of the above prices when he ships the product (Cost and Freight landed port)

COMPARISON OF WHOLESALE PRICE FOR SELECTED SEAFOOD ITEMS



Commodity	Unit	Port of Spain Wholesale Fish Market			Orange Valley Wholesale Fish Market		
		Nov - 10	Dec - 10	% Change	Nov - 10	Dec - 10	% Change
Ancho	kg	33.38	38.62	16%	24.26	28.66	-
Bachin	kg	22.05	18.81	-15%	NA	19.84	-
Blanche	kg	5.20	4.41	-15%	NA	NA	-
Brochet	kg	13.78	14.62	6%	17.64	21.73	-
Carite	kg	30.92	38.35	24%	26.36	39.68	51%
Cat Fish	kg	4.41	4.89	11%	5.88	6.61	-
Cavalli	kg	18.28	18.03	-1%	15.44	18.74	21%
Cro Cro	kg	11.02	11.76	7%	7.73	8.17	6%
Cutlass Fish	kg	6.61	4.41	-	NA	NA	-
Herring	kg	4.41	NA	-	3.86	5.51	-
King Fish	kg	44.77	42.52	-5%	NA	42.99	-
Mixed Fish	kg	10.94	11.62	6%	4.07	4.38	8%
Moonshine	kg	15.80	17.75	12%	15.12	15.87	5%
Red Fish	kg	31.14	35.03	12%	30.13	40.48	34%
Salmon	kg	24.78	28.66	16%	20.84	24.88	19%
Shark	kg	15.92	15.40	-3%	11.95	12.36	3%
Shrimp (M)	kg	41.65	45.27	9%	31.41	29.92	-5%

Annual Review of Selected Fresh Produce Prices and Volumes 2009/2010

Item	Unit	PRICES			VOLUMES		
		2009	2010	Change 09/10	2009	2010	Change 09/10
Carrot	kg	7.43	8.79	18%	2,111,894	1,583,200	-25%
Cassava	kg	4.62	4.64	0%	834,136	620,437	-26%
Eddoes (Imported)	kg	10.32	11.40	10%	920,296	494,164	-46%
Sweet Potato (Local)	kg	5.42	7.63	41%	2,027,332	1,180,783	-42%
Celery	bdl.	24.89	31.57	27%	206,837	159,177	-23%
Chive	bdl.	37.69	39.50	5%	212,473	161,725	-24%
Hot Pepper	kg	13.28	22.85	72%	335,201	234,551	-30%
Pimento (M)	kg	15.93	13.79	-13%	84,121	55,576	-34%
Cabbage (Local) (Gn)	kg	6.93	7.76	12%	1,168,127	933,341	-20%
Callaloo bush (open)	bdl.	2.99	3.68	23%	579,093	485,220	-16%
Callaloo bush (roll)	bdl.	4.02	4.70	17%	130,940	124,105	-5%
Lettuce (M)	head	3.36	4.40	31%	253,203	190,700	-25%
Cucumber	kg	4.50	5.12	14%	2,064,292	1,536,585	-26%
Melongene (M)	kg	5.59	6.93	24%	136,105	141,656	4%
Sweet Pepper (M)	kg	9.76	18.85	93%	261,038	125,837	-52%
Tomato (M)	kg	10.54	13.53	28%	1,017,521	720,451	-29%
Pumpkin	kg	2.71	3.22	19%	2,665,818	1,784,538	-33%
Banana (Imported)	kg	7.74	8.56	11%	1,003,863	938,728	-6%
Papaya	kg	7.21	5.89	-18%	356,796	252,978	-29%
Pineapple	kg	6.92	9.22	33%	564,007	444,979	-21%
Watermelon	kg	5.30	5.18	-2%	876,622	744,684	-15%

Overall, the year 2010 showed reduced volumes of the selected fresh produce entering the Northern Wholesale Market when compared to 2009. The result was increases in prices for the majority of items. During 2010, fruit and vegetable production was severely affected by unusual weather patterns. For the first half of the year, Trinidad and Tobago experienced drought like conditions, which limited the water supplies available for agriculture, thereby reducing production and crop yields. Rainfall in the latter half of the year resulted in flooding in major farming areas in the North East such as Plum Mitan and Vega de Oropuche. The heavy rainfall increased disease pressure on crops and also resulted in excessive flower drop in some crops such as tomato and peppers thereby causing yields to be reduced.

Peppers, both Sweet Pepper (M) and Hot Pepper showed the most significant price increases of 93 and 72% respectively, as volumes fell by 52 and 30%. During 2010, Pepper production was adversely affected by the infestation of the fields by the Corn Ear Worm. This pest is not usually associated with Peppers and as such farmers were taken by surprise by the devastation caused. Hot Pepper prices peaked at \$1,300/40lb bag in August and retailed as high as \$3 for 2 Peppers. Sweet Potato prices started the year at a low of \$3.57/kg during the first quarter, prices rose steadily from April to September to a high of \$13.49/kg as a result of the dry weather, however production increased during the rainy season resulting in reduced prices for the last quarter of \$7.59/kg.



Biopesticides

NAMDEVCO's Farm Certification and Monitoring Program is geared towards the promotion of Good Agricultural Practices (GAP's). The concept of GAP has evolved in recent years in the context of a rapidly changing globalized food economy. This is as a result of the concerns and commitments of a wide range of stakeholders regarding food production and security, food safety and quality, and the environmental sustainability of agriculture.

In using GAP's, a key component would involve the use of an Integrated Pest Management (IPM) programme. The use of Biological Pesticides is of key importance in any IPM programme.

What is a Biological Pesticide?

A biological pesticide is a product which is derived from plants, fungi, bacteria, or other non-man-made synthesis which can be used for pest control.

Biopesticides are inherently less harmful than conventional pesticides. They are designed to affect only one specific pest or, in some cases, a few target organisms, in contrast to broad spectrum, conventional pesticides that may affect organisms as different as birds, insects, and mammals. They are effective in very small quantities and often decompose quickly, thereby resulting in lower exposures and largely avoiding the pollution problems caused by conventional pesticides.

In most cropping systems, biological pesticides should not necessarily be viewed as wholesale replacements for chemical control of plant pests and diseases, but rather as a supplement that can be used as a rotation to prevent the onset of resistance to chemical pesticides and improve sustainability.

Products extracted from Neem seeds are well recognized biopesticides. The active ingredient is **Azadirachtin**. This broad spectrum biocide provides the most effective, economic and lasting control of major pests of agricultural and plantation crops. It is one of the most environmental friendly pesticides, highly biodegradable and leaves no residues on the food stuff. Some of the key pests it controls are: thrips, mites, aphids and whiteflies.

The effects of Neem products is as follows:

- ★ It deters insects from feeding on the crop treated with it
- ★ It repels insects by its odour
- ★ It has an insect growth regulatory effect. Evidence suggests that azadirachtin disrupts the development of insects. Many insects do not reach adulthood or produces malformed adults
- ★ It affects the ability of insects to lay eggs on treated areas thereby reducing pest populations

Another well known biocide is *Bacillus thuringiensis (Bt)*. It is a naturally occurring bacterium common in soils. *Bt* insecticides are most commonly used against some leaf- and needle-feeding caterpillars. The *Bt* microbe actually contains two parts: an active spore and a thick-walled storage spore that includes a toxic protein crystal. Once the *Bt* is ingested by a larval insect, the walls of the storage spore dissolve, releasing the toxic crystal. The toxin destroys the gut wall of the insect, permitting the active spore to pass into the blood stream, where it multiplies. The insect then dies from blood poisoning. The pH of the insect's gut is critical to dissolving the walls of the storage spore. Not all insects have the same acidity in their gut, and this is why some insects are susceptible to *Bt* poisoning and others are not.

Advantages

- ★ No toxic residue on food stuff
- ★ No harm to natural predators and pollinators
- ★ Pests do not build resistance
- ★ Totally biodegradable
- ★ No ecological or environmental problems

Disadvantages

- ★ High specificity, requires exact pest identification
- ★ Often slow speed of action (thus making them unsuitable if a pest outbreak is an immediate threat to a crop)



Effect of Bt on aphids





The Wonder of Watermelon

One of the most refreshing things to have on a hot day is a chilled slice of watermelon.

Tips for purchasing watermelon

- ✓ Watermelons that are prematurely harvested do not continue to ripen after harvest. Mature fruits can be identified if the stem area is smooth and slightly sunken while in immature fruits the stem adheres to the scar.
- ✓ When the fruit is sliced, the flesh should be a bright red flesh with a dark brown or black seeds. Too many white seeds is an indication that the fruit was harvested too early.
- ✓ Thumbing a ripe melon should produce a deep thudding sound while the skin should be dull and waxy and yield slightly to pressure.
- ✓ The underside it is resting on should be pale yellow in colour, not white nor light green.

Nutritional Benefits

Nutritionally how does our local watermelon compare with foreign varieties of melon, for example the honeydew melon?

- ➔ They are both low in calories because of their high water content and good sources of vitamins, minerals and phytochemicals.
- ➔ Even though watermelons are lower in vitamin C and potassium than honeydew melons, they contain 10 times the amount of Vitamin A than its foreign counterpart! Vitamin A assists in maintaining healthy teeth, mucous membranes, skeletal and soft tissue.
- ➔ Watermelons also contain nearly 9 times more beta carotene than honeydews. Beta-carotene is an antioxidant. Antioxidants protect cells from damage caused by unstable substances called free radicals. Research has found free radicals associated with the development of certain chronic diseases.
- ➔ Watermelons also contains double the amount of Vitamin E and 65% more Riboflavin or Vitamin B2 respectively than honeydew melons. Vitamin E is also an antioxidant while Riboflavin helps with the release of energy from our foods.
- ➔ Unlike honeydew melons, our watermelons contain very high concentrations of the heart-healthy phytochemical lycopene. Lycopene has also been associated with a lower risk of prostate cancer.
- ➔ Both types of melons contain pectin which helps to keep blood cholesterol levels in check.

So the next time you go to the market or supermarket reach for our delectable watermelon instead, not only will you be getting a nutrient-packed fruit that makes a great snack but you will be paying much less for it than the foreign melons!

Article courtesy the National Schools
Dietary Services Limited



Shrimp and Watermelon Salad

Makes 4 -6 servings

Prep Time: 10 minutes

Ingredients

1/8 teaspoon salt
1 pound shrimp, peeled and deveined
1 lemon, juiced
4 pounds watermelon with seeds removed, rind removed, cut into chunks
1/2 red onion, sliced thin
1 jalapeno pepper, chopped



Honey-Lime Vinaigrette:

2 tablespoons fresh lime juice
1 teaspoon honey
4 tablespoons olive oil
Salt and freshly ground black pepper

Directions

Boil water in a medium saucepan. Add a dash of salt and lemon juice. When water boils, add shrimp, until they turn an opaque pink colour. Remove shrimp from pan and shock in cold water to stop the cooking. In a large bowl, combine watermelon, onion and jalapeno. In a separate bowl mix together: lime juice, honey, olive oil and dash of salt and pepper. Drizzle over melon salad and toss to combine.

Nutrition facts per serving:

254 calories; 10g fat (1.6g sat, 7g mono); 141 mg cholesterol; 24g carbohydrate;
17g protein; 2g fibre;
215mg sodium

Recipe adapted from the Foodnetwork.com



AVERAGE PRICE COMPARISONS NOVEMBER VS DECEMBER 2010 ACROSS THE VARIOUS MARKETS

Commodity	Unit	NWM Nov 10	NWM Dec10	Farmers' Markets Nov 10	Farmers' Markets Dec 10	Municipal Markets Nov 10	Municipal Markets Dec 10	Vege- Marts Nov 10	Vege- Marts Dec 10	Super- markets Nov 10	Super- markets Dec10
ROOT CROPS											
Carrot	Pack	4.16	3.64	5.95	5.88	5.45	5.48	6.01	6.00	6.55	6.40
Cassava	Kg	4.49	4.35	6.07	6.32	6.64	6.81	7.23	6.73	9.63	9.24
Dasheen(Local)	Kg	12.25	9.90	13.74	13.99	14.62	13.28	12.13	14.20	17.14	16.68
Eddoes (Local)	Kg	5.65	6.24	7.96	8.02	9.71	10.35	9.52	10.44	15.93	14.03
Sweet Potatoes (Local)	Kg	7.27	8.71	10.20	11.88	13.28	13.15	12.96	13.65	18.09	18.10
Sweet Potatoes (Foreign)	Kg	9.43	9.74	11.02	12.49	12.60	13.67	11.46	13.60	16.84	20.11
Ginger	Kg	21.18	24.67	29.86	31.21	30.49	33.61	34.23	35.24	48.28	43.87
CONDIMENTS AND SPICES											
Celery	Bndl.	1.27	1.47	2.36	2.34	2.19	2.54	2.43	2.68	3.14	3.13
Chive	Bndl.	1.39	1.86	2.48	2.76	2.20	2.86	2.53	3.14	3.48	3.19
Hot Peppers	Each	0.79	0.59	0.98	0.80	1.14	0.99	1.12	1.01	1.30	1.25
Shadon Beni	Bndl.	0.53	0.66	1.55	1.72	1.19	1.30	1.07	1.18	1.66	1.69
Pimento	Each	0.33	0.36	0.40	0.36	0.52	0.52	0.59	0.55	0.70	0.68
LEAFY VEGETABLES											
Lettuce (M)	Head	4.32	4.60	4.92	4.58	5.54	5.96	6.24	6.10	7.38	7.41
Patchoi	Bndl.	4.22	6.30	5.42	5.88	5.77	7.35	6.12	7.24	7.81	8.15
Amaranthus spp. (Spinach)	Bndl.	3.46	5.35	5.27	5.89	5.39	6.63	5.57	6.75	7.05	7.76
Cabbage(Local) (Gn)	Kg	6.61	7.01	11.06	10.54	11.13	10.54	11.81	11.91	15.96	14.74
Callaloo Bush (open)	Bndl.	3.34	3.17	4.83	4.83	5.11	5.03	5.20	5.13	5.62	5.64
Callaloo Bush (roll)	Bndl.	4.37	4.11	6.78	6.50	6.79	6.30	6.51	6.68	7.16	7.32
OTHER VEGETABLES											
Bodi beans	Bndl.	5.08	6.76	5.18	5.85	4.26	5.35	5.21	5.35	6.91	6.60
Caraille	Kg	7.04	12.83	12.49	12.75	11.52	15.37	12.43	15.13	18.17	19.92
Cauliflower	Kg	18.49	23.38	22.05	26.70	25.40	30.29	27.38	34.93	35.73	35.21
Cucumber	Kg	4.71	5.39	7.31	7.54	8.70	11.18	8.88	9.19	11.95	12.17
Christophene	Kg	9.96	12.13	14.50	18.37	18.25	13.89	15.35	23.80	23.39	20.87
Melongene (M)	Kg	5.91	11.29	9.48	10.01	9.80	12.81	9.51	14.58	11.37	15.13
Ochro	Each	0.15	0.20	0.26	0.31	0.31	0.33	0.28	0.39	0.47	0.46
Pumpkin	Kg	4.55	4.77	6.29	6.62	6.78	7.20	6.64	7.32	7.42	8.10
Plantain (Ripe)	Kg	8.71	11.98	12.45	13.70	13.28	15.72	14.41	16.67	17.83	18.70
Sweet Pepper (M)	Kg	10.38	17.48	16.25	14.06	17.60	21.22	20.03	22.12	29.89	26.91
Seim Beans	Kg	12.93	16.40	17.96	17.98	19.99	20.54	17.95	19.32	27.60	28.28
Tomato (M)	Kg	18.31	17.74	21.53	20.91	22.50	22.40	22.74	23.24	32.28	32.44
FRUITS											
Dry Coconuts	Each	3.19	2.75	4.15	4.31	4.99	5.20	5.05	5.79	5.38	5.46
Banana (imported)	Kg	8.18	8.11	10.78	10.04	11.04	10.91	11.28	11.42	12.34	12.15
Papaya	Kg	6.45	6.06	8.34	8.22	9.98	9.35	11.59	11.19	12.89	13.17
Pineapple	Kg	9.24	8.79	12.04	11.57	13.73	12.64	13.41	13.30	16.28	15.81
Watermelon	Kg	6.18	5.85	6.66	6.61	6.45	8.54	7.90	8.61	8.22	9.53
CITRUS											
Lime	Each	0.34	0.72	0.48	0.66	0.84	0.91	0.96	1.24	0.98	1.01
Grapefruit	Each	0.95	0.79	1.42	1.15	1.51	1.21	2.12	1.61	2.68	2.02
Orange	Each	1.50	0.98	1.45	1.17	1.80	1.36	2.32	1.52	3.21	2.32

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