

Ian Goodfellow and Roger Rolle monitor eggplant progress under full sun. Note structure in place for rapid installation of shade cloth.



Photo by Karin Goodfellow

Using a combination of basic hydroponics, fertigation, and field-farming techniques, Ian and Karin Goodfellow have needed only two years to gross \$1 million annual revenue from 8 acres of scrubland

Island Farming



Tim Aylen/BIS Photo



Photo by Karin Goodfellow

By Arthur Montague

By 2003, Ian and Karin Goodfellow were already veteran producers of high-end salad greens and tomatoes on the island of Eleuthera, about fifty miles by sea or air from The Bahamas largest city, Nassau, too far to tap Nassau's rich destination tourism market. Nevertheless, the Eleuthera farm was operating at capacity, using the simple methods the Goodfellows would eventually replicate in Nassau.

On the marketing side of operations, fresh salad greens—lettuce, arugula, and spinach—were sold directly to restaurants and dining rooms on the island. The Goodfellows added farm gate sales and a range of chutneys, relishes, jams, and other condiments produced from their crops. Sales of the latter had reached 1000 gallons annually on Eleuthera by 2003. At that time, the Goodfellows were the only commercial growers in the country successfully utilizing hydroponics and fertigation.

Island Hopping

When the Goodfellows began thinking expansion, they had to look across the water to neighboring islands, notably Grand Bahama, where relatively cheap arable land was available near The Bahamas second largest city, Freeport, which, like

Above, left: The farm's herbs are grown in raised beds and flats under shade cloth. Herbs include cilantro, parsley, basil, garlic, garlic chives, oregano, thyme and dill. Above, right: Individual potting of pepper plants enable quicker production turnaround. Below: Ian Goodfellow, Roger Rolle, and the operator review the injector system.



Photo by Karin Goodfellow

Nassau, is an international tourist mecca.

The Goodfellows admit to having given no thought to locating near Nassau, but in Nassau, thought was being given to enticing them there. Although its economy is driven by tourism, the city has been dependent on imports from northern Florida for its fresh vegetables, which, by the time they arrive, were often less than fresh. Moreover, northern Florida crops are sometimes subject to winter frost, never a problem in Nassau. Prominent Nassau community developer Orjan Lindroth had long cherished the idea that sustainable commercial agriculture was possible in The Bahamas. The Goodfellows had proven it on Eleuthera. Lindroth offered them the opportunity to raise the bar. He had a 60-acre tract of land within half an hour's drive of downtown Nassau. Although previously cultivated, the land had been out of production for many decades.

When Ian Goodfellow first walked the land, it didn't look like much. His practiced eye quickly noted that beneath the overgrowth was only marginal soil. On the plus side, the water table was sound. Lindroth, with his New Providence Development Corp. was able to offer an economical solution to the soil problem—an almost unlimited supply of rich natural compost, garnered from land clearance and maintenance projects throughout the island. A partnership was struck, and the Goodfellows went to work.

Hard Work and Know-How

Eight months, the first phase of an 8-year program to develop the entire 60 acres, was required to clear land and bolster soil with compost, install an inexpensive T-tape system, and work out kinks in their potting system. Throughout, worker training was ongoing. In that regard the Goodfellows had a leg up because for several years, in conjunction with the College of The Bahamas, they had delivered an Internship Program to the College's agricultural students at their Eleuthera farm.

Within a short time, the farm was daily supplying fresh greens and tomatoes to 17 of

Nassau's finest restaurants. The Goodfellows had learned the value of effective marketing with their first farm. Said Ian, "Quality products are what we grow, but service is what we sell." Salad greens are picked to order each morning and delivered the same day. Special blends were developed, including the "millionaire mix," an 11-seed combination, in effect a ready-made salad mix made possible through careful, constant attention to growing detail, a Goodfellow forte.

Capital intensive grow operations hold no interest to the Goodfellows. Their pots in the thousands, their irrigation system, and the few chemicals they utilize are inexpensive compared to the requirements of computerized greenhouse operations. Thus far, the operation has not required external cooling, lighting, fans, or misters.

Ian notes that his outdoor growing climate is similar to that of New Zealand. During winter months, lettuce can be grown in straight sunlight, although exterior shade-cloth is used to minimize wind damage to this and other fragile crops. In the summer, the shade-cloth is required to repel excessive sunlight. The openness of Goodfellow's system has necessitated use of rain cloths over his hydroponic micro mixes. The rain, when it comes, may be brief but torrential. Moreover, The Bahamas is subject to periodic hurricanes and tropical storms.

The Daily Round

Goodfellow detailed his current Nassau operation:

"We have approximately 5,000 three-gallon pots filled with Pro-mix and Perolite, growing tomatoes, cucumbers, eggplants,

swiss chard, basil, cilantro, parsley, dill, chives, and nasturtians.

"And then we have 600 four-foot by six-inch deep flats filled with Pro-mix that grow micro greens, micro lettuces and micro arugula. All the pots are watered by a completely automated clock system. Any overflow drains out. We have no recirculating or collection system and since we don't use that much fertilizer, we don't think it's a tremendous detriment to our environment. We have not gone back to the straight fertigation mixture we used on Eleuthera. We now add minor elements with liquid seaweed into our field drip irrigation system, our T-tape system. However, we'd like to move to a Dutch pot system so that we can collect the overflow and use that on a tree farm operation to grow horticultural plants.

"The micro green flats are all watered by hand because each flat can be in a different stage of production -- meaning the age of the plant -- where some plants are just coming out, -- some are two weeks old, and some three weeks old. They're all watered by hand by a hose with a hydroponic mixture coming through the hose. And because we have inexpensive labor to do that, this simplifies the watering process for the micro greens. With the micro flats in one area, it's done by one worker who now understands exactly how much water/fertilizer irrigation it takes to do each one of these."

Soil-borne diseases are a problem requiring continuous attention. Eschewing use of a steam machine or chemical applications such as methyl bromide, every Summer Goodfellow covers each of his T-taped 30-foot by 300-foot beds in rota-



Above left: Goodfellow's farm is on Eleuthera, an island in the Bahamas. The sub-tropical climate requires extensive use of shade cloth to protect growing crops such as these young tomato plants. Above right: Goodfellow worker prepares to carry out daily morning herb harvest.



tion with black ground cover secured with rocks. Beneath the cover, soil temperature reaches 180 degrees F, killing most of the diseases.

Utilizing a program of integrated pest management (IPM), Goodfellow has avoided use of chemical pesticides since he began the Nassau farm. Instead, he relies on Permethrin, NEM-extract, and an organic horticultural oil – Safers Insecticidal Soap.

Goodfellow doesn't deliberately rely on beneficials. What he has discovered, however, is that after two years of cultivation without chemical pesticides, natural beneficials are thriving for both his field and hydroponic components.

Only in passing was consideration given to having the farm certified organic, although it now works close to standard. Goodfellow discovered that local demand for organic produce was negligible. Add to that, organic fertilizer would have to be imported, that at very high cost. Finally, the nearest certification inspectors were U.S.-based, The Bahamas having no regulatory structure in place. Given the high input costs and inability to pass them to buyers, organic certification was a non-starter.

Pricing in the Marketplace

As things stand, the margin for Goodfellow produce is exceptional. Wholesale prices are based on those set by importers. However, costs are much lower, and field to table is hours rather than days or weeks, thus guaranteeing a freshness importers can't touch.

With a solid foothold in the hospitality sector – greengrocers to the rich and famous, or at least to their chefs – the Goodfellows expanded to marketing a line of fresh produce to the island's top supermarket chain. Starting with field grown greens, arugula, and baby spinach, together with hydroponic micro greens and hydroponic arugula, herbs are next on the product list.

In 2004 the Nassau

Goodfellow's Gourmet Food

Gourmet restaurants with standing orders for Goodfellow Farm produce are some of Nassau's and neighboring Harbor Island's finest. They

include Atlantis Five Twins, Ocean Club Dune, Villagio, Lyford Cay, Graycliff, Old Fort Bay Club, The Landing, and The Rock House.

farm produced 20,000 pounds of tomatoes, 11,000 pounds of greens, and over 13,000 pounds of micro greens. Baring hurricanes, the Goodfellows can count on having an 11-month annual growing season.

From their first Nassau crop, the Goodfellows have encouraged farm gate sales – at no discount. Just as with their earlier Eleuthera farm, these burgeoned into processing of add-on commercial foodstuffs, a retail outlet, and, then, a restaurant, all on-site. The add-ons include jams, jellies, chutneys, relishes, spreads, salsas, syrups, and salad dressings. They also market a wholesale line that includes a dozen different fresh quiches and half a dozen different varieties of lasagna.

Future Farming

As more and more acres are brought into production, the Goodfellows believe the potential for their farm is astounding. They plan to double the size to 16 acres during the next few years, growing much the same crops but continuing to diversify.

Coming up will be hydroponically

grown papayas, melons, and strawberries. They plan to start with strawberries and are leaning toward a Verti-Gro stacking system. Herbs also hold a compelling market-driven attraction for them.

"In Nassau," says Goodfellow, "a bunch of fresh basil sells for \$10. There's a pent-up energy and demand for quality produce and products. So let's just give them what they want."

Also moving off the planning table is an aquaculture tilapia venture. Goodfellow has had success testing a floating cage culture in a 10-acre, 8-foot deep, man-made pond on the property. He believes the local market can absorb up to 100,000 pounds of fresh tilapia annually, a quantity which could easily be supported by the pond.

In June the country's Minister of Agriculture, Alfred Gray, conducted a media tour of the farm to publicize the rich opportunities available to Bahamian growers. The Goodfellow's farm, the only one of its kind in the country, is a showpiece for successful agriculture development, a replicable economical model that demonstrates

the potential to turn as much as \$300 million a year in food imports into as much domestic product. 🌿

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Two-year-old Maclean Goodfellow assesses tomato crop.