

**How to Grow
More Vegetables**
By: John Jeavons

A General Preface

The Common Ground Garden was started in 1972 to find the agricultural techniques that would make food-raising by small farmers and gardeners more efficient. We have come to call the result “mini-farming.” Mini-farms can flourish in non-agricultural areas such as mountainous regions, arid areas, and in and around urban centers. Food can be produced where people live. With knowledge and skill, the yield per hour can be high without the expensive machinery that is the preoccupation of our current agriculture. Mini-farming is available to everyone.

We began by concentrating on the exciting possibilities presented by the Biointensive method—does this method really produce four times the yield, as Alan Chadwick claimed? If so, does it take more water? Consume vast amounts of fertilizer and organic matter? Does it exhaust the soil? Or the people working? The only way to answer these questions was to plunge in and try it. Initially, we worked mainly on the quantitative aspects, developing the tools and data to maximize yields within the framework of Biointensive’s life-giving approach. This involved experimentation with and evaluation of plant spacings, fertilizer inputs, various watering methods, and other variables.

The work has always been worthwhile despite ongoing difficulties attracting strong, ongoing support. The biggest single asset to this undertaking is John Jeavons’s unflinching stamina and dedication. Over and over, when we all ask, “Can it work?” he answers, “How are we going to make it work?” It is becoming increasingly clear that sustainable Biointensive mini-farming will be an important part of the solution to starvation and malnutrition, dwindling energy supplies, unemployment, and exhaustion and loss of arable land, if the social and political challenges can be met.

After 23 years of testing, Biointensive has produced amazing benefits, but a lot of work is still to be done. *Yields* can average

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two to six times those of U.S. agriculture and range up to 31 times. The full potential has probably not yet been reached. We are still working to develop an optimally healthy soil system. *Calorie* and *compost crops* present the most challenges because they are crucial in meeting the nutritional needs of people and the soil. Experiments include soybeans, alfalfa, fava beans, wheat, oats, cardoon, and comfrey. So far our yields are from one to five times the U.S. average for these crops. *Water* use is well below that of commercial agriculture per pound of food produced, and is about 33% to 12% that of conventional techniques per unit of land area. *Energy* consumption, expressed in kilocalories of input, is 1% of that used by commercial agriculture. The human body is still more efficient than any machine we have been able to invent. Several factors contradict the popular conception of this as a labor-intensive method. Using hand tools may seem to be more work, but the yields more than compensate. Even 25¢ a pound *wholesale*, zucchini can bring as much as \$9.00 to \$16.00 per hour depending on the harvest timing. Time spent in soil preparation is more than offset later in less need for weeding, thinning, cultivation, and other chores per unit of area and per unit of yield. Hand watering and harvesting appear to take the most time. Initial soil preparation, including fertilization and planting, may take 5 to 9-1/2 hours per 100-square-foot raised bed. Thereafter the time spent decreases dramatically. A new digging tool, the U-bar, has reduced subsequent bed preparation time to as little as 20 minutes when that is desirable. A new hand watering tool is also being developed which waters more quickly *and* more gently.

Nature has answered our original queries with an abundance even greater than expected and narrowed our search to the most important question that can be asked of any agricultural system. Is it sustainable? The Biointensive method currently uses 1/2 or less the purchased *fertilizer* that commercial farmers use. Can we produce all fertilizer needs on site? Or is some outside input always necessary? We need to look more closely at all nutrients: nitrogen, phosphorus, potash, calcium, and trace minerals. Anyone can grow good crops on good soil, cashing in on Nature's accumulated riches. The Biointensive method appears to allow anyone to take "the worst possible soil" (Alan Chadwick's appraisal of our original Palo Alto research site) and turn it into a bountiful garden or mini-farm. Preliminary monitoring of the soil-building process by a University of California soil scientist was probably the most important research performed at the initial site. Continued monitoring will unlock new secrets and provide hope for people with marginal, worn-out, or desertified soils. However, a complete answer to the long-term question of sustainable soil fertility will require at least 50 years of observation as the living soil system changes and grows! We are currently working on that answer.

Nine years of growing and testing in Ecology Action's urban garden mini-farm came to an end during 1980 due to the termination of our lease and the start of construction on that land. Like so much other agricultural land in the United States, our lovingly tended beds succumbed to the press of urbanization. The city growing area prepared us for a rural site. The "safety nets" of grocery store and electric lines were slowly removed to make room for open skies and room to grow more herbs, flowers, vegetables, beans, grains, and compost crops than we ever imagined. At the Common Ground Mini-Farm in Willits, we are enjoying a permanent site where we can grow trees of all kinds, for food, fuel, and beauty. Other projects include a self-fertilizing lawn composed of fragrant herbs and clovers, and a working "mini-farm." We initially estimated that a one-person small holding (1/8 to 1/2 acre) can grow crops bringing in a net income of \$5,000 to \$20,000 a year (about \$100 to \$400 a week) after 4 to 5 years. One woman in Vancouver, British Columbia, Canada is already earning about \$400 a week growing gourmet vegetables for restaurants on 1/16 of an acre. At first she thought it could not be done, but as she tried growing crops for income it began to work. She is now passing her skills on to 12 other women. Crops grown may include collards, chard, beets, mangels, spinach, green onions, garlic, radishes, romaine and Bibb lettuce, zucchini, patty pan squash, cucumbers, and lavender. Most importantly, we hope people will not look solely to Ecology Action for answers, but will dig in and try Biointensive for themselves! The techniques are simple to use, as this book shows. No large capital expenses are necessary to get started. The techniques work in varied climates and soils. American farmers are "feeding the world," but mini-farming can give people the knowledge to feed themselves.

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