Crop diversification is of interest to many vegetable growers. However, inadequate marketing knowledge and insufficient cultural and economic information greatly increases the risks associated with diversifying into new, nontraditional, specialty crops. A state or regional effort integrating marketing concerns, production requirements, and economic considerations would assist growers in determining viable options for diversification, while minimizing these risks. This multidisciplined cooperation would provide reliable recommendations and guidelines to growers concerning potential new crops. Such an approach would not necessarily develop specific markets for individual growers, but rather it would define marketing opportunities on a state or regional basis. Individuals could then use the methodology to ascertain specific marketing niches and tailor at least a portion of their production accordingly.

Several reports have described the possible advantages of new or nontraditional crops (CAST, 1984; Kline et al., 1986). These include high market prices, demand exceeding supply, improved quality from local sources, and improved sales of traditional crops through the associated publicity. These advantages are offset in part by incomplete cultural information, increased labor requirements, difficulty in adapting these crops into traditional production and management schedules, lack of labeled pesticides, lack of information on postharvest requirements and shelf-life, and limited marketing opportunities (Kline et al., 1986).

A regional, integrated approach to crop diversification should highlight those crops where demand exceeds supply through market analyses, as well as provide information on production feasibility, potential problems, and economic return. This approach coordinates the efforts of several disciplines, including marketing specialists, horticulturists, postharvest physiologists, agricultural engineers, and agricultural economists.

**Assessment of market potential**

The marketing analysis includes determining target markets, estimating market possibilities, and assessing the economic feasibility of a new enterprise. The evaluation of potential marketing windows is essential. Target markets for the growing region in question need to be determined. The weekly high, low, and average prices for the past 5 years in those target markets should be plotted. Quoted wholesale prices need to be discounted 15% to allow for average wholesale markup (Runyan et al., 1986). Marketing, distribution, and production costs should also be estimated. The comparison of prices to average costs by month indicate the marketing window of opportunity. Periods of positive margins (open market windows) must then be matched with the potential harvest periods for the target growing area. Although the prices for some of the traditional crops are recorded by the USDA (1987), information on pricing, demand, and availability of small-volume, specialty crops may be difficult to obtain.

In addition to examining market windows, a buyer survey should be conducted. The survey should target at least four types of produce handlers: wholesale/retail distributors; food service/food preparation merchants; military markets; and further processors. Buyers receptive to handling local produce should be identified. Buyer suggestions concerning product mix and specific market requirements should be obtained. Also, market standards must be determined so that the salable product will satisfy the market demand. These specifications will vary with the target market. Food service establishments (particularly restaurants) are often willing to pay higher prices, but require exceptional quality. Wholesale/retail distributors, military markets, and further processors frequently require large quantities at competitive prices.

Other marketing factors to be taken into consideration include: identification and analysis of trends in per-capita consumption; size and scope of the marketing or distribution channels; possible competition (in terms of quality, volume, and cost of production); location of distribution outlets; and the cost incurred in serving those markets (Runyan et al., 1986).

The identification of marketing opportunities by market-window analyses and buyer surveys does not guarantee that all of these opportunities can be addressed by the growers in the target region.

**Assessment of production potential**

The production feasibility, as well as marketing opportunities, of new crops must be analyzed. Market demand for vegetable crops will determine potential acreage. Product yields must be sufficient to provide a net profit and product quality must meet or exceed present market standards. Potential economic value of new or nontraditional crops must be identified and evaluated.

After production of a new or nontraditional crop is determined to be feasible, a cropping system must be developed by: 1) the evaluation of published research and current commercial practices from other areas; 2) the development of multidisciplined research approach to adaptation of cultivars and production methods; 3) the construction of the associated production budgets; and 4) the establishment of local grower trials (O'Dell, 1989). The cropping system should promote product availability during the period of the open market window.

The environmental impact must also be considered. In the future, increased emphasis on limiting fertilizer and pesticide inputs to protect ground water quality is expected. Producers will need to address the challenge of crop production with limited inputs while supplying the quality product that the market demands. Potential pest problems need to be evaluated and research completed to acquire regional pesticide labeling when appropriate. Research objectives should reflect efforts to minimize production inputs and environmental impact while maximizing production efficiency, product quality, and economic return.

**Development of resource profile**

An evaluation of the resource profile for the area would assist in the determination of...
new crop feasibility. The resource profile should include natural (land and water), human (management and labor), and capital (venture, debt, and equity) resources present in the region. The total and potential hectares should be identified. Present production schedules can then be examined. The new or supplemental crops must fit into the present production schedules of traditional crops, or the present schedules must be sufficiently flexible to allow for the incorporation of the new crop. The possibility of using existing facilities and equipment should also be examined. Other factors to consider include the present demand for labor, grower knowledge and/or receptiveness to growing, and grower commitment. An assessment of grower attitudes toward cooperation within the region may be needed to assess the feasibility of regional new crop enterprises. Grower involvement in the various phases of the feasibility analysis is critical.

**Assessment of economic potential**

A simultaneous evaluation of market demand, cultural adaptation, and the determination of economic feasibility is essential. Establishing cost estimates of production, packaging, and handling are needed. Profitability must be possible in both the short-term (covering only variable costs) and in the long-term (covering fixed and variable costs). The evaluation of economic options, both individually and as a region, can be critical to the successful incorporation of new crops into the traditional production system. For many of these crops, the coordination of production by some form of grower association would provide a consistent supply of quality product to the market. This would protect the market from over-supply, which adversely affects market value. Quality control must remain a high priority for growers to maintain a place in the market.

This systems approach delineates areas of potential economic risk in the production and marketing of the new or alternative crops studied. Successful crop diversification is then possible through the development of individual or regional marketing and production opportunities.

**Literature Cited**


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**LETTERS**

**FRAUD, SLOPPINESS, AND MISTAKES IN HORTICULTURAL SCIENCE**

It is hoped that Science Editor Lipton's opinion [ASHS Newsletter 5(2):1–2] that horticultural research publications are free of fraud is correct, as fraud is typically very difficult to prove and there are considerable pressures to "publish or perish", even in horticulture. Unfortunately, a type of fraud seems widespread in commercial horticulture in the form of "miraculous" claims for horticultural products, such as fertilizers and biocatalysts. This type of fraud reflects badly on horticultural science; therefore, horticultural scientists have a duty to conduct research that tests such claims.

Any sloppiness or mistakes in refereed articles have to be largely, if not totally, the responsibility of the editors and reviewers. This may seem harsh considering the lack of or meager compensation they receive, but the whole basis of refereed publications is to eliminate sloppiness and mistakes. Because of their critical role, reviewers and associate editors need to be selected very carefully and given appropriate recognition and support.

An important mechanism for revealing sloppiness and mistakes in publications is the forum provided by letters to the editor. Unfortunately, this does not seem to work well in HortScience, because letters to the Editor questioning published research typically receive no response or irrelevant or hostile comments from the research author, rather than an objective and substantive discussion of the issues raised. An author of a refereed scientific article should welcome the opportunity to objectively discuss his/her research in such a public forum. Also, any reader who detects errors in published research has a professional responsibility to correct them.

Since all ASHS Members have a stake in the integrity of horticultural science, we need to develop a greater intolerance to sloppiness and errors in our own manuscripts, in manuscripts we review, in claims for horticultural products, and in the horticultural articles we read, be they scientific or popular. As horticultural scientists, we have to serve as the guardians of "truth" for all of horticultural science.

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**Corrigenda**

- In the article “Callus Production and Somatic Embryogenesis from White Ash”, by John E. Preace, Ji-liang Zhao, and Fan H. Kung [HortScience 24(2):377–380, April 1989], the authors wish to note the following: In Table 3, “2,4-D” should replace “NAA” under the heading “PGR in primary (DKW) medium”.

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**MSTAT-C**

**Design and Analysis of Agronomic Research**

**NEW MSTAT C**

- **Design and Generate Experiments** - RCB, LATTICE, CRD
- **Create and Maintain Research Records**
- **Create and Maintain Master Accession Files**
- **Create and Generate Books, Labels, Maps**
- **Spreadsheet Style Data Entry**
- **Statistical Analysis**
  - ANOVAS - one and two-way, lattice, hierarchical, nonorthogonal, diallel, factorial with covariance
  - SUMMARY STATISTICS - means, frequencies
  - REGRESSION ANALYSES - linear, multiple
  - DATA ANALYSIS - multivariate statistics, CHI-square mean separations - LSD, Duncan's, S-N-K, Tukey's
  - orthogonal contrasts, transformations, calculations
- **REPORT WRITING/DATA INPUT** - ASCII input-export
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- **Equipment Requirements:**
  - IBM or Clone with hard disk, 320K, 5 or 3 in. disks
- **Pricing** (US Dollars):
  - Commercial $ 595
  - Non-profit/Individual $ 295
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