Texas Agricultural Extension Service

Vegetable Production & Marketing NEWS

VOLUME 7, NUMBER 6 JUNE 1997

Workers Prefer Growers Over FLCs

This article by Gregory Encina Billikopf appeared in California Agriculture, Volume 51, Number 1.

In the May 1997 newsletter, a study exploring grower preferences for hiring directly or using farm labor contractors (FLCs) as intermediaries was discussed. In contrast, this report examines worker preferences. A better understanding of what workers value can benefit farm employers -- both growers and FLCs -- who want to attract and retain a productive work force. Dissatisfied workers are more likely to increase turnover rates and reduce productivity.

In this study, 211 crew workers at 19 job sites were interviewed in an attempt to determine a preference for employment directly with a grower or through an FLC intermediary. These interviews took place in the northern San Joaquin Valley in a large variety of orchards, vineyards, and vegetable operations in the summer of 1995. Most crew workers were interviewed while they worked, with consent from supervisors or employers. At the time of the interview, 63 percent of the crew workers were employed by FLCs, while only 37 percent were hired directly by growers.

Most of the crew workers had worked only for a grower or only for an FLC. Among those who had experienced working under both an FLC and a grower, there was an overwhelming preference for growers as employers. Crew workers felt that growers paid a "little more" than FLCs. According to crew workers, FLCs were sometimes guilty of not paying what they owed, not paying without a struggle on the part of the workers, and not paying on a timely basis. Furthermore, workers were unhappy that part of their salary went to the FLC and that they were not informed by FLCs whether they were working for piece rate or hourly pay. Some crew workers were vocal in denouncing FLCs.

Attitudes about treatment and working conditions included better, less abusive treatment by growers; being able to deal with growers directly; receiving better explanations and experiencing fewer conflicts when dealing with growers; work for growers slower paced; growers more likely to provide breaks and toilets in the fields; less stoop work arranged by growers; FLCs more likely to fire a worker "who misses a little work;" and FLCs might not always pay wage-related taxes. Others expressed concerns that fewer FLCs provide health insurance, and that growers had the ability to offer more constant work or longer hours than FLCs.

Those crew workers favoring FLCs over growers offered the following advantages: lack of a language barrier; FLCs are less likely to get angry; FLCs provide better supervision; and FLCs pay better. Some of these seem to contradict comments made by those who preferred growers, but people's perceptions are molded by their personal experiences. FLCs are likely to improve their image with crew workers if they (1) arrange for smoother transitions in work from one operation to the next; (2) pay workers on a timely basis (regardless of when the FLC gets paid); (3) clearly indicate pay rates ahead of time; (4) make it easy for workers to keep track of what they are earning so that payday discrepancies can be resolved; (5) make work assignments clear; (6) provide safety training in such areas as safe lifting and Worker Protection Standards (pesticide safety); (7) provide breaks, toilets, and cold drinking water, as well as water, soap, and paper towels for hand washing; (8) develop clearly understood reward and disciplinary processes; and (9) seek to continually improve supervision and interpersonal relations when dealing with crew workers.

Some of the recommendations are simple common sense; others are required by law. Perhaps the foremost challenge that remains is that of pay and benefits. After all, if an FLC is going to make a living, he or she must also receive a salary

(Continued on Back Page)

EPA Answers Questions on Methyl Bromide

This information was published by the EPA, Office of Air & Radiation, Stratospheric Protection Division (6205-J), January 1997.

Methyl bromide is a broad spectrum pesticide used in the control of pest insects, nematodes, weeds, pathogens, and rodents. In North America (41 percent of world use), it is used in agriculture for soil fumigation (87%), commodity and quarantine treatments (8%), and structural fumigation (5%); most methyl bromide is used in the production of tomatoes, strawberries, and peppers.

Methyl Bromide depletes stratospheric ozone, with scientific evidence estimating that bromine from this material is 50 times more effective at destroying ozone than chlorine from CFCs on a per-atom basis. The ozone depletion potential (ODP) of this material has been assessed to be 0.6 by the 1994 Science Assessment of Ozone Depletion, a document prepared by nearly 400 of the world's leading atmospheric scientists. The Clean Air Act requires that any substance ODP of 0.2 or greater be listed as a Class 1 substance, and phased out in the United States within seven years.

Under the authority of the Clean Air Act, the EPA has prohibited the production and import of methyl bromide after January 1, 2001. In addition, EPA froze U.S. production in 1994 at 1991 levels. EPA has allowed the longest possible time before phaseout in order to facilitate a smooth transition to alternatives. The phaseout applies to chemical production and imports, not use. To date, nothing has been done by Congress to change the U.S. phaseout.

There are a number of pest control tools which can manage pests currently controlled with methyl bromide. Viable alternative materials need not be identical to methyl bromide, but must effectively and economically manage those pests now being controlled by methyl bromide. Research on additional alternatives is underway, and will likely result in a wide range of options, depending on the use of methyl bromide. The following alternatives to methyl bromide are often pest specific, and can reduce economic past levels when used as part of an overall integrated pest management program:

- **SOIL**. Chemical alternatives: 1,3-dichloropropene, dazomet, chloropicrin, and metam sodium, as well as selective contact insecticides and herbicides. Nonchemical alternatives: crop rotation, organic amendments, steam, solar heating, biological control agents, cultural practices, and plant breeding.
- **COMMODITY.** Chemical alternatives: phosphine and carbonyl sulfide. Nonchemical alternatives: irradiation, controlled atmospheres utilizing nitrogen and carbon dioxide, and heat/cold.
- **STRUCTURAL.** Chemical alternatives: sulfuryl fluorides and phosphine, as well as contact insecticides and rodenticides. Nonchemical alternatives: controlled atmospheres utilizing nitrogen and carbon dioxide, and heat/cold.

EPA recognizes the importance of a pesticide like methyl bromide to the agricultural community, and is working closely with the U.S. agricultural community on research into materials which fit the pest management needs now being addressed by methyl bromide. Preliminary field tests of methyl iodide in California and Florida appear very encouraging, with methyl iodide equal to, or better than, methyl bromide in controlling soil pests. Findings also indicate that it will not cause ozone depletion problems when used as a pesticide. EPA is now in the process of evaluating health/environmental issues.

While some uncertainties remain concerning the exact magnitude of methyl bromide's role in ozone depletion, the 1994 Science Assessment reports that an uncertainty analysis suggests that the ODP is unlikely to be less than 0.3. Methyl bromide continues to be viewed as a significant ozone-depleting compound. Additional research is ongoing to address outstanding uncertainties, and to define the precise ODP, which may turn out to be slightly higher or lower than 0.6. The amount of methyl bromide produced by agricultural sources (20-60 kilotons/year) is enough to have considerable impact on the stratospheric ozone layer, disrupting the natural balance of the atmosphere, and increasing the amount of hazardous radiation that reaches the earth.

Several European countries have phased out methyl bromide for agricultural use, and Canada will cut methyl bromide use by 25 percent in 1998. A number of other countries are now contemplating regulatory action for methyl bromide use and production. The Montreal Protocol, an international treaty signed by more than 150 countries, governs the production and trade of ozone-depleting substances (ODS). CFCs and other ODS are being phased out worldwide. The Montreal Protocol set an ozone depletion potential of 0.7 on methyl bromide in 1992, and froze production in 1995 at 1991 levels. In 1995, a global methyl-bromide production phaseout was agreed upon, with complete phaseout by 2010. For developing nations, a freeze in 2002 was agreed to. The U.S. position at the Protocol meetings was a total global phaseout by 2001. The Montreal Protocol can provide a level playing field by harmonizing regulations on a global basis, phasing out materials at a similar rate, and thereby encouraging cooperative work on alternatives.

For more information, contact the Ozone Protection HOTLINE at (800) 296-1996 or Bill Thomas of the EPA at:

Bill Thomas, U.S. EPA - 6205J
401 M Street SW
Washington, DC 20460

Telephone: (202) 233-9179. FAX: (202) 233-9577

E-mail: thomas.bill@epamail.epa.gov

Visit the EPA Methyl Bromide Web Site at:
http://www.epa.gov/ozone/mbr/mbrqa.html

Methyl Iodide Shows Promise as Soil Fumigant

This article by J. Ole Becker appeared in Carrot Country, Summer 1997.

For more than three decades, methyl bromide and its combination with chloropicrin have been used as broad spectrum soil fumigants to control soilborne pathogens, plant parasitic nematodes, and weeds. However, recent extensive environmental assessments have concluded that bromine is one of the chemicals responsible for global ozone depletion. The recently passed Clean Air Act mandates a ban on the production and import of methyl bromide in the United States by January 1, 2001.

Without a replacement similar in efficacy and spectrum, this ban will have a profound impact on several crop production systems. Economic studies predict that annual costs to growers and consumers will exceed $1 billion. Fresh carrots are one of the crops to which soil fumigation can be critical. It is often required to reduce root-knot nematode populations sufficiently to maintain profitable levels of production.

Until now, methyl bromide has been available under a Section 18 permit for non-tarped use. However, this year the application period has been severely restricted. Currently, 1,3-D and metam sodium are registered for soil fumigation for carrot production, but problems concerning availability or efficacy of these materials demand further searches for alternatives.

Recently, scientists at the University of California, Riverside, identified methyl iodide as a potential substitute for methyl bromide. Both fumigants are used in chemistry as alkylating agents.

In contrast to the light-stable methyl bromide, methyl iodide decomposes rapidly in light, which results in a very short residence time in the atmosphere. Therefore, it cannot reach the stratosphere to react with ozone. Because of the similarity in both fumigants' chemical reactivity, there was reason to expect similar efficacy against target organisms exposed to the compounds.

And in fact, in laboratory studies, methyl iodide--at equivalent molar rates--was found to be as effective as, or more effective than, methyl bromide against a wide range of fungal pathogens, plant parasitic nematodes, and weeds.

However, laboratory trials are only the first step in the evaluation process. A two-year project, funded by the California Fresh Carrot Advisory Board and a Carlsbad Agricultural Research Grant, is currently underway to further evaluate the performance of methyl iodide. In addition to greenhouse and microplot studies, both methyl bromide and methyl iodide are being tested in growers' fields to allow a more realistic comparison of their efficacy.

One field experiment was conducted in a carrot field at Buena Vista Farms in Bakersfield. Potatoes had been planted in this field in the previous season, which resulted in a tremendous build-up of root-knot nematodes. Soil samples were taken to UC Riverside and planted in a susceptible tomato host. Mature females of the nematode were isolated from galled roots, and identified by standard morphological criteria as *Meloidogyne incognita*.

Fumigants were applied about two weeks before seeding. Telone II was applied by a commercial applicator according to the current standard practice. Methyl bromide (100 and 200 pounds per acre) and methyl iodide (150 and 300 pounds per acre) were applied by hot gas injection under 4-mil polyethylene tarp. This method was used to allow precise application rates in relatively small plots 20 feet in length. The trial design was a randomized complete block with four replications.

All three fumigants reduced the root-knot nematode population below detection levels. Carrots growing in fumigated plots were significantly more vigorous than in the non-treated check. Methyl iodide was as effect as, or more effective than, methyl bromide in controlling the weeds *Cyperus rotundus, Portulaca oleracea,* and *Chenopodium album.*

After approximately four months, the growth differences between the fumigated plots and the check were still clearly visible. At harvest, carrots from the non-treated plots showed the characteristic symptoms of root-knot nematode damage, such as forking of the tap root, stubbing, and galls on feeder roots. In the absence of an effective nematicide treatment, this level of infestation would have resulted in an almost complete economic loss.

Telone II treatment was as effective against root-knot nematodes as the other fumigants. However, yields in plots fumigated with methyl bromide or methyl iodide were significantly higher. This indicates that other yield-limiting biological factors were present that were eliminated by the broad spectrum fumigants but not by Telone II.

This observation is interesting because it supports reports by other researchers who have found that many U.S. crops have the potential routinely to produce 15 to 25 percent higher yields--without increasing water or fertilizer supply--if constraints on root health can be averted.

In conclusion, the insignificant ozone-depletion potential of methyl iodide and its efficacy against soil pests and pathogens make it a strong candidate to replace methyl bromide. However, additional toxicological and ecological studies are needed to support the development of methyl iodide for production agriculture.

Texas Agricultural Extension Service
United States Department of Agriculture
The Texas A&M University System
College Station, TX 77843

OFFICIAL BUSINESS
Penalty for Private Use $300

BULK RATE
POSTAGE & FEES PAID
USDA
PERMIT NO. G-268

Appearing Within . . .

Workers Prefer Growers . . . *(Continued from Front Page)*

for the service contributed in recruiting and managing the work force. FLCs who can provide technical expertise and supervision of such tasks as pruning, grating, and harvesting may obtain a higher wage for their efforts.

It is hard for an FLC who offers a good salary and benefits package, and complies with legal requirements, to compete against those who follow a more casual approach -- for example, paying 'under the table', not paying taxes, or not providing required training. The very nature of the legal structure does not help. Many laws extend essential benefits and protections to farm workers, but others simply add to the paperwork and stress of running a business, and enforcement is often inconsistent or nonexistent.

In summary, given a choice, crew workers overwhelmingly prefer working for a grower rather than for a farm labor contractor. FLCs generally have a couple of advantages over growers, including less of a language barrier and the potential for providing longer work seasons. Nevertheless, workers perceive growers as providing more work (per day and per season); better pay, benefits, and working conditions; better treatment; and even better communication and instructions.

Educational programs of the Texas Agricultural Extension Service are open to all people without regard to race, color, sex, disability, religion, age, or national origin.

Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture, Zerle L. Carpenter, Director, Texas Agricultural Extension Service, The Texas A&M University System.

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied.

Frank J. Dainello
Extension Horticulturist
Commercial Vegetable Crops
The Texas A&M University System
College Station, TX 77843-2134