ONE RABBIT — ONE HORSE

by John Hathaway

According to current scientific research, concentrations of anthropogenic halogens in the stratosphere (expressed in chlorine equivalent) will reach a peak level around the year 2000. After that, levels will decrease throughout the 21st century. Estimates of the proportion attributable to anthropogenic emissions of methyl bromide range up to approximately ten percent. This peak represents a projection of the results of the phase-out of ozone depleting substances under the Montreal Protocol.

The 1992 Copenhagen decisions included the following: 1) methyl bromide listed as a controlled substance with an ozone depletion potential (ODP) of 0.7; 2) production freeze in 1991 at 1995 levels; 3) quarantine and preshipment uses exempted; 4) no trade restrictions; 5) reconsideration of issues in 1995 after the 1993-1994 Technical Options Assessment. The Parties to the Montreal Protocol further resolved "to make every effort to reduce emissions of and to recover, recycle and reclaim, methyl bromide." A target of reducing methyl bromide emissions by 25% by the year 2000 and of establishing a possible phase-out date was also proposed, subject to the results of the 1993-1994 Scientific Assessment. In contrast, the listing of methyl bromide under the Clean Air Act is inflexible. Production and importation of methyl bromide will cease in the United States by the year 2001.

Arizona, in assessing the implications of the phase-out of methyl bromide, has identified quarantine fumigation of agricultural commodities as the critical issue for both Arizona and its neighbor to the south, Sonora, Mexico. Globally, post-harvest use of methyl bromide (including quarantine applications) represents approximately ten percent of all methyl bromide use. Drawing on a "Mutt & Jeff" cartoon of the 1930's, in which Mutt admitted to adulterating a certain recipe — whose primary ingredient was rabbit — with horsemeat, to the tune of "one rabbit to one horse," this author suggests that it may at least be prudent to consider the effects of a total ban on methyl bromide under the Clean Air Act. The arithmetic is simple: ten percent of ozone depletion is attributable to methyl bromide; ten percent of methyl bromide is used for quarantine fumigation; ten percent of ten percent is one percent.

For Arizona and Sonora, fumigation with methyl bromide is a phytosanitary reality. Citizens of the United States are accustomed to year-round availability of fresh fruits and vegetables at bargain prices (as a proportion of income), when compared with the rest of the world. Roughly half of US demand for such produce is currently supplied by Mexico, proportionally more during the peak winter months. Nogales, Arizona-Sonora is the largest single port-or-entry for these commodities. In the other direction, midwestern grain passes into Sonora by rail. Methyl bromide is currently used to prevent use of the grain for seed due to partial bunt infection. Methyl bromide fumigation of cotton, Arizona's most important export crop, is a condition-of-entry for most importing countries. What will happen to this trade if methyl bromide fumigation is effectively banned in the US? Will crops be simply fumigated "off-shore" under the less restrictive Montreal Protocol? Will export markets be lost? Will an attitude of "lips that touch wine will never touch mine" evolve to apply similarly to US agricultural trade?

Both Arizona and Sonora are, by-and-large, pest-free zones, a status maintained with nervous vigilance. Mexican states south of Sonora have not yet achieved the phytosanitary status of Sonora. Sonora, for its part, acts as a buffer to infested areas of Mexico, requiring fumigation of transhipped produce for its own protection as well as ours. Indeed, with the accelerated trade anticipated under the North American Free Trade Agreement, plans are being implemented to expand surface transportation infrastructure to support increased traffic to and from Mexico. The concept of the Canamex corridor describes the vision for Arizona to further expand its role as a crossroad for north-south as well as east-west trade. For the sake

of the people of both the United States and Mexico, let us consider the importance of maintaining economic development versus the social costs of economic migration, as currently exists along the US-Mexico border.

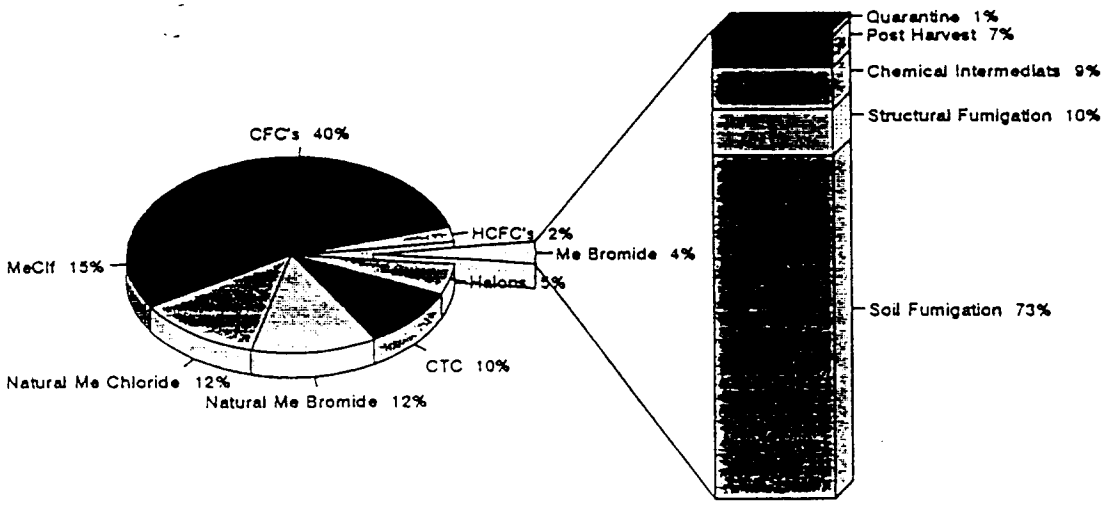
While methyl bromide is not the perfect pesticide, as it has sometimes been portrayed, the existing alternatives are truly lacking. Irradiation has been touted as a solution to the methyl bromide dilemma. One need only to visit the Mariposa Truck Compound at Nogales and try to envision the contrast between a lab technician wearing a film badge and a truck driver wearing cowboy boots and a large belt buckle with "Sinaloa" engraved across its face. It is this author's understanding that the dosimetry for quarantine irradiation is very dependent, not only on the product and target pest, but its size gradation and carefully placed arrangement around the radiation source. Imagine, if you will, the lab technician and the truck driver carefully arranging cucumbers from one of over 16,000 truckloads entering the United States at Nogales during the winter months of a given year. Let us ignore, for the moment, questions of capital expenditure for installation of such facilities in a community already fraught with a host of environmental problems and of acceptance of irradiated fruit with wiggly, though sterile larvae still inside.

Other alternatives to methyl bromide have their strengths and weaknesses. Controlled atmosphere van technology holds great promise for products being transported over great distances by sea, as shown by the work done by the Defense Logistics Agency, American Presidential Lines and others on commissary shipments to Guam. However, the travel time by truck or rail from the Mexican to the Canadian borders is measured in hours, not days or weeks. Lengthy storage time in warehouses or controlled atmosphere vans for quarantine purposes is questionable when compared to normal surface transit time within the Canamex corridor, particularly for perishable commodities. Let us not forget the capital investment issue associated with such technology.

Certainly we must endeavor to reduce the use of methyl bromide and to eliminate emissions to the atmosphere. The approach to the entire methyl bromide issue, however needs more, not less, creativity and flexibility than is currently available under present laws. The issues relating to quarantine fumigation have serious and far reaching implications, from farm worker exposure and field pesticide use to the economic vitality of developing nations and their ability to purchase products manufactured by United States workers. The implications of a phase-out without effective alternatives include the following: 1) disruption of agricultural trade due to inability to guarantee equivalent protection to importing countries; 2) disruption of agricultural trade due to concerns over the use of methyl bromide in other countries, while it is banned in the US; 3) increased risk to pest-free zones in Arizona and Sonora if alternatives prove to be less effective; 4) disruption of trade if the capital investment in alternatives are not planned now; 5) a possible dramatic increase in use of pesticides in the field and the resulting acceleration in resistance to pesticides.

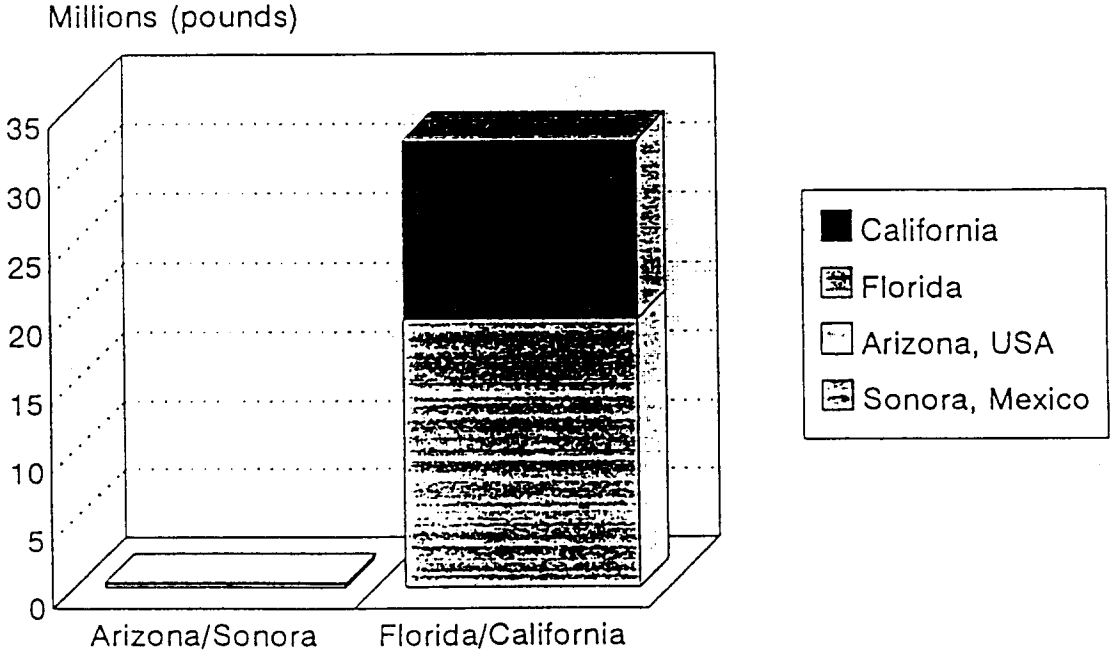
In conclusion, the author would like to suggest that it is time to leave the old, media specific, crisis-on-the-cover of *TIME* way of approaching environmental management. It is time to expand the new approach to environmental management that recognizes the relative threat of environmental problems, and approaches them in a flexible, cooperative manner. To quote John Muir, "When we try to pick anything out by itself, we find it hitched to everything else in the universe." Let us endeavor to educate the decision makers, not in narrow self-interest, but with an enlightened attitude that realizes that mutually beneficial solutions can be achieved though the genius of the human mind and the spirit of cooperation.

Stratospheric Ozone Depleting Chemicals Copenhagen Agreements

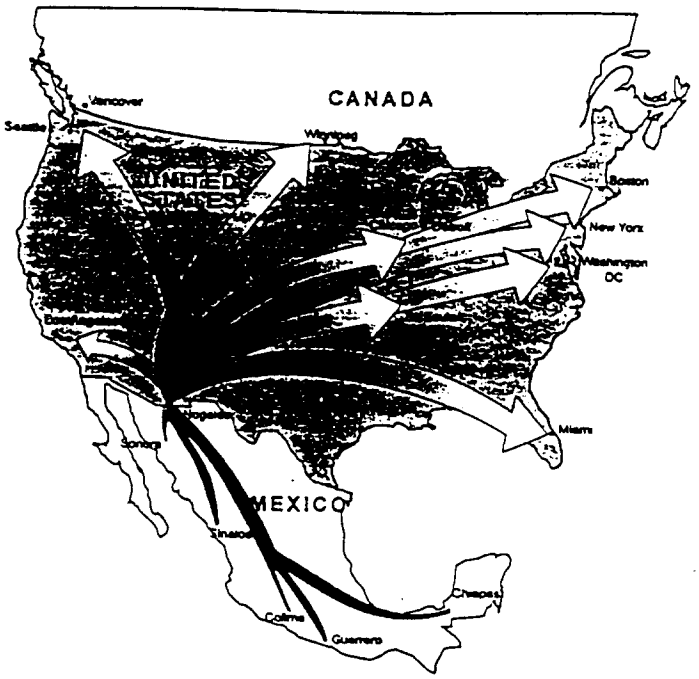


These are estimated Depletion Potentials for 1999-2000

Methyl Bromide Consumption Arizona, U.S.A - Sonora, Mexico Versus Florida and California, USA Pounds)



North American Produce Distribution
Through Nogales



Rail System