INORGANIC AZIDES AS ALTERNATIVES TO METHYL BROMIDE IN THE FUMIGATION OF SOILS: A REVIEW

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Sodium and potassium azides have been researched for use in the dinsinfestation of soils for over three decades. These salts can be formulated in stable, safe, liquid or solid preparations, that can be delivered into soil by a variety of techniques. SEP 100^R a liquid formulation of sodium azide (NaN_3) has performed as well as or better than methyl bromide (MBr) for control of weeds, nematodes, and other soil-borne pests in extensive field testing in Alabama for the past four years. Applications of the formulation by drip irrigation have controlled nutsedges (*Cyperus* spp.) and other hard-to-kill weeds in field tests with cantaloupe, green pepper, and tomato. In addition, NaN_3 treatments controlled root-knot nematodes (*Meloidogyne* spp.), Fusarium crown rot of tomato (*Fusarium solani* f.sp. *lycopesici*) in tomato, and other fungal diseases in tests with the three crops. Yield response and disease control in the crops have been consistently as good or better than those obtained with MBr. Field tests with turf in Alabama, demonstrated potential of NaN_3 to substitute MBr to solve problems caused by weeds and plant pathogenic nematodes. Results of field tests in other parts of the United States and in Canada by other researchers, have corroborated the Alabama findings. Use of NaN_3 requires not only knowledge its chemical and physical properties but also, understanding of its optimal placement in relation to the target pests. Accurate knowledge on NaN_3 movement and distribution by irrigation water in soil is prerequisite for successful pest control with the compound. NaN_3 has good potential for replacement of MBr in the production of most crops.