

**PESTICIDAL PROPERTIES OF HYDROGEN CYANAMIDE: A
NONFUMIGANT WATER-SOLUBLE COMPOUND.** R. Rodriguez-Kabana.
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The pesticidal properties of hydrogen cyanamide [HN:C:NH] were studied in a multiyear project involving greenhouse, microplot and field experiments. Pre-plant drench applications of stabilized aqueous formulations of the compound at rates of 150 – 600 lbs/A controlled species of plant pathogenic nematodes in the genera *Helicotylenchus*, *Hoplolaimus*, *Meloidogyne*, *Paratrichodorus*, *Pratylenchus*, and *Rotylenchulus*. Drench-applied HN:C:NH formulations were also active against a variety of annual weeds including nutsedges [*Cyperus rotundus* & *C. esculentus*], pigweed [*Amaranthus* spp.], annual morningglory [*Ipomoea hederacea* & *I. lacunosa*], sicklepod [*Senna obtusifolia*], crabgrass [*Digitaria sanguinalis*], goosegrass [*Eleusine indica*], and others. Most weeds were controlled with doses in the range of 200 – 400 lbs/a; however, nutsedges required rates of 500 – 600 lbs/A. HN:C:NH was prepared for use in several stabilized liquid formulations compatible with a variety of registered commercial pesticides. Combination treatments with registered nutsedge specific herbicides + HN:C:NH at 150 - 300 lbs/A took care of all weed problems. Mulching with plastic following application was not necessary for optimal nematicidal and herbicidal activities. Results from comparative experiments on the pesticidal activities of HN:C:NH and those of calcium cyanamide demonstrated the inferiority of the latter compound for control of weeds and plant pathogenic nematodes. Field experiments with strawberry near Watsonville, CA, showed that pre-plant applications of the compound were equivalent to treatments with methyl bromide, and formulations of 1,3-dichloropropene + chloropicrin, for increased yield, and control of weeds and soil-borne pathogens. Decomposition of HN:C:NH in soil is rapid and results in formation of NH_4^+ and NO_3^- and no volatile organic compounds. Results suggest that hydrogen cyanamide can be considered as an alternative for fumigation with methyl bromide in the treatment of soils.