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Organic amendments for the management of tomato diseases grown under protective and open field cultivation

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Organic soil amendments are used routinely in various aspects of crop production and reported to either increase or decrease the incidence of plant diseases. Certain plant families when used as amendments were reported to suppress certain diseases through biofumigation. Based on this premise, a trial had been conducted to determine the effect of fresh cabbage residues, *Chromolaena odorata* and forest leaf litter as soil amendments on disease incidence, severity and yield of tomato grown under low-cost protective structure and open field. All three amendments were applied at the rate of 15 kg/10 m² plots, 3 weeks before transplanting. Data gathered include disease ratings and yield and yield components. Results showed that all amendments have reduced bacterial wilt due to *Ralstonia solanacearum* and *Meloidogyne incognita* galls regardless of type of cultivation. Plants amended with *Chromolaena odorata* and forest leaf litter had also reduced bacterial spot caused by *Xanthomonas axonopodis* pv. *vesicatoria* under protective cultivation. The amendments had no effect on the incidence of leaf mold due to *Pseudocercospora fuligena*. Cabbage produced the highest marketable yield and number of fruits in both protective and open field cultivation compared to other treatments. Protective cultivation on the other hand had effectively reduced bacterial diseases and increased the yield of tomato. Bacterial wilt, bacterial spot and nematode ratings were higher in the open field while leaf mold was higher under protective cultivation. Organic amendments, particularly cabbage has a potential in the control of major diseases affecting tomato especially for bacterial wilt and *M. incognita* infestations.

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Challenges and opportunities for revitalizing smallholder irrigation schemes in South Africa

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South Africa is the 30th driest country in the world, and is classified as water scarce. The country depends on agriculture for food production with the irrigation sector being the largest consumer of water, accounting for about 62% of water utilization, but also losing 30-40%. With the advent of drought and the climate change threat, efficient irrigation systems have become a necessity especially in the smallholder farming sector where most losses occur. The objectives of this review were to assess challenges facing smallholder irrigation schemes (SIS) and explore opportunities for revitalizing the schemes. The focus was on government policy and strategies to support the smallholder farmers. The SIS were developed to improve rural livelihoods through sustainable food production for food security and poverty alleviation, but the development objectives remain largely unfulfilled. Dilapidated irrigation infrastructure, low yields caused by poor management of crop enterprises, limited access to arable land and lack of markets are among the main causes of poor performance. These findings point to the need to balance the soft and hard components of the irrigation schemes for sustainability, and yet the core focus of government has largely been on repairing irrigation infrastructure. It is therefore evident that the government needs to review its priorities in revitalization of SIS. Evidence also indicates that extension officers lack support skills, particularly in irrigation water management. Land tenure policies allowing increased access to arable land need urgent developed together with alternative cropping systems which are not labour intensive.

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