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### Particle films: A new technology for plant protection and postharvest quality improvement in apple

In the recent years, a new technology has emerged to protect the fruit plants from insect pests and diseases and has become an integral part of organic production system. This technology is called as Particle film technology. Particle films are kaolin-based films which form a thin layer of mineral particles on the leaves and fruits. Several developed countries have commercialized several such films but no attempt has yet been made in India. Hence, of the several developed films, Surround and Raynox were imported from USA and France, respectively and a systematic study was conducted on apple. Three sprays at fortnightly interval each of Surround (3%) and Raynox (3) were given on Royal Delicious apples trees; starting from 15th June, 2015. The results revealed that out of these films, surround-treated apples developed very good red color (Hunter 'a' value=52.4±0.2) than Raynox treated or untreated (Control) fruits. The surround-treated apples matured about 5-day later but have better fruit firmness (28.8±0.23 N) and TSS (14.6±0.1%) than untreated fruits. Interestingly, the incidence of Sanjose scale (2.8±0.04%) and apple scab (2.2±0.04%) was drastically reduced by surround sprays but that of woolly apple aphid (8.6±0.2%) was increased over untreated fruits (7.8±0.2%). Raynox-treated apples exhibited low rates of respiration as well as ethylene evolution than surround-treated apples or those under control. Keeping quality of apples was influenced by particle films Raynox-treated apples had higher stay at room temperature (38 days) than surround-treated apples (28 days) or untreated ones (21 days). During storage, 'Raynox' as well as surround-treated apples have lower activities of LOX and PME than untreated apples. The incidence of bitter pit was significantly low (1.2±0.05% and 1.8±0.05%) in Raynox and surround-treated apples over control. Thus, it can be concluded that this technology has great future as it can become an integral part of organic fruit production in India as well.

### Biography

R R Sharma has completed his Post graduation from IARI, New Delhi and then joined as a Scientist there in 1997. He is a Senior Scientist and associated with release of mango hybrids like Pusa Arunima, Pusa Surya, Pusa Lalima, Pusa Shresth, Pusa Pitamber etc. He has published 40 research articles in international journals, 60 in national journals and authored 8 books. He is the recipient of Dr. R.N. Singh Award (twice), Dr Rajinder Prasad Award (twice), Education award and Himachal Shri Award. He has also served as International Mango Registrar for about 5 years (1999-2004).

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