Residential exposure

- There has been considerable concern raised by people living in houses close to farmland, who have alleged ill health due to pesticides used on neighbouring fields, drifting on to their property

Examples of houses close to treated field, without a garden or hedge between house and sprayer

Residential exposure

- However, in addition to any spray that may drift into these residential properties, pesticides are now also used in homes and gardens, both in rural and urban areas.
- The extent to which homes are treated will vary significantly,
- In warmer climates and where buildings have significant timber construction, insecticides are applied for vectors of disease, particularly mosquitoes and flies, household pests, such as cockroaches, termites, ants and other pests.
- Garden use is often mostly herbicides used on lawns, but fungicides and insecticides are also used to protect flowers and some vegetables.

Residential exposure

- Apart from potential direct exposure when using a pesticide, residents can take residues of pesticides into their houses on clothing, especially agricultural workers, on shoes by walking over treated surfaces.
- In areas with fleas on animals, carpets and furniture, residents will also be exposed to insecticides by touching treated surfaces.
- Residue transfer from a treated surface can be assessed using whole-body dosimeters (all- cotton suits, cotton socks and cotton gloves are worn).

Residential exposure

- Sampling in a metropolitan and an agricultural area of Washington State, USA, revealed quantifiable levels of azinphos methyl and chlorpyrifos on children's hands or their toys, that suggested a greater potential exposure in agricultural families
- Levels of organochlorine pesticides, including DDT and its metabolites were detected in 200 women living in an area of Spain with intensive greenhouse agriculture who provided adipose tissue and blood samples during surgery.
- As these chemicals can be mobilised in the body during pregnancy and lactation, health consequences for the children of those exposed is of some concern and further research is needed on infant exposure in this way

Residential exposure

- In the developing countries, pesticides may be stored in houses, including the bedrooms as this is considered one of the safest places to avoid theft

Worker exposure

- Many people come into contact with surfaces treated with pesticides as part of their normal working day.
- These include those harvesting many vegetable and fruit crops and flowers, especially on protected cropping, where deposits may remain on foliage longer than when crops are exposed to rain.
- Care is particularly needed to avoid entry into and touching treated crops immediately after a spray application.
- Hands and other parts of the body touching treated surfaces may be wetted by spray deposits or when the deposit has dried, they may pick up dry, dislodgeable residues later

Worker exposure

- In a study in greenhouses in which chrysanthemums were being grown, dermal and inhalation exposure was measured during high volume spray application of the OP insecticide methomyl.

- The data provided a useful comparison of the exposure on hands during mixing the pesticide, spraying and either manually or automatic harvesting, which occurred on average 27 days after treatment

Worker exposure

- The amount of dislodgeable residues is normally related to the dosage applied, but will be affected by the formulation used and affinity of particles to the foliar surfaces.
- Their distribution will also be a function of the application technique.
- Exposure to these deposits is predominantly dermal and can also be intermittent
- Considerable number of worker exposure scenarios are confined to four main parts:

Worker exposure

- Dermal exposure outdoors related to harvesting, pruning and thinning orchard crops, soft fruit and vineyards
- Dermal exposure indoors related to harvesting ornamentals and fruiting vegetables
- Exposure to vapour in open fields and protected cropping.
- And sowing treated seeds.

Mean potential dermal exposure of hands (mg/h) (Brouwer et al., 1994)

Mixing and loading sprayer	13.0
During high volume application	0.8
Harvesting	
Manual	3.6
Automatic	1.1