







### Safflower diseases management

| Safflower growth stage<br>pest |  |  |  |  |  |  | Disease management strategies  |
|--------------------------------|---|---|---|---|---|--|--|
|                                | Cotyledon   | Four-leaves   | Multi-leaves  | Budding   | Flowering   | Seed filling   |  |
| Seedling damping off           | <i>Pythium sp., Phytophthora spp., Rhizoctonia sp., Fusarium sp.</i>              |   |   |   |   |  | Timely cultivation, Healthy seed, Proper drainage, Rotation, Seed treatment with suitable fungicides such as carboxin thiram or metalaxyl compounds. |
| Downy mildew                   | <i>Bremia lactucae</i>  |   |   |   |   |  | Seed treatment with suitable fungicides such as metalaxyl-mancozeb, Rotation and Stubble management, Resistant varieties.                            |
| Powdery mildew                 |   |   |   | <i>Erysiphe cichoracearum</i>   |   |  | Timely cultivation, Rotation and Stubble management, Spraying with sulfur fungicides or Dinocap (Karatane)   |
| Rust                           | <i>Puccinia carthami</i>  |   |   | <i>Puccinia carthami</i>  |   |  | Healthy seed, Seed treatment with suitable fungicides, Rotation and Stubble management, Resistant varieties.   |
| Plant Death                    |   |   | <i>Phytophthora spp</i>   |   |   |  | Proper drainage, Rotation, Resistant varieties, Applying suitable fungicides such as metalaxyl compounds.  |
| Charcoal Rot                   |   |   |   | <i>Macrophomina phaseolina</i>  |   |  | Rotation, Timely cultivation, Tolerant varieties, Proper planting density, Irrigation.   |
| Sclerotinia Rot                |   |   |   | <i>Sclerotinia sclerotiorum</i>   |   |  | Rotation, Tolerant varieties, Proper planting density, Use of fungicides before infection.   |
| Ramularia Leaf Spot            |   |   |   | <i>Ramularia spp</i>  |   |  | Timely cultivation, Rotation and Stubble management, Weeds control, Tolerant varieties.  |
| Alternaria Leaf Spot           |   |   |   | <i>Alternaria carthami</i>  |   |  | Timely cultivation, Rotation and Stubble management, Weeds control, Tolerant varieties.  |
| Verticillium Wilt              |   |   | <i>Verticillium dahliae</i>   |   |   |  | Rotation and Stubble management, Weeds control.  |