PAKISTAN CITRUS MANAGEMENT CALENDAR

Australia-Pakistan Agriculture Sector Linkages Program

GROWTH STAGE		ACTION
Dormancy (Dec-Jan)		**Pruning:** The main cause of fruit blemish is wind injury. Removing deadwood and thinning out branches will reduce wind blemish. It will also encourage new branch growth to produce good quality fruit. **Disease:** Apply a Bordeaux paste (1.5 kg Lime + 50g Mancozeb® +50g copper Oxy chloride in 10L of water) to the trunk of affected trees to reduce the impact of Phytophthora. **Soil improvement:** After harvest apply composted farm yard manure (FYM) 5 trolley/acre. Apply the FYM under the tree canopy and not close to the trunk. **Management:** After harvest cultivate between the trees to remove weeds and prepare for next seasons intercropping program. Do not tractor cultivate under tree canopy as it will disturb tree roots, use light hand hoeing instead. . **Soil improvement:** Apply composted farm yard manure (FYM) after harvest @ 5 trolley/acre. Apply the FYM under the tree canopy and not close to the trunk.
Bud Break, leaf expansion and flowering (Feb- April)		**Nutrition**: Total annual nutrition should be about 1 kg N, 0.4 kg P_2O_5, 1kg K_2O per tree in three split doses, however these rates should be adjusted to site conditions (i.e. soil type, fruit rind quality, leaf analysis and crop load). First application should be about N 0.5 kg and P_2O_5 0.4 kg per tree. Apply a zinc and manganese micronutrient foliar spray on young leaves when about 2/3 expanded (about 3-5 cm long). Micronutrient sprays are generally applied just before flowering. Pre mixed commercial micronutrient mixtures are available or a custom mixture can be made by mixing 250g of zinc sulphate, 250g of manganese sulphate and 250g of low biuret urea (biuret lower than 0.5%) per 100L of water. The urea in the mixture improves the uptake of the micronutrients. **Disease:** If scab pressure is high, apply a strobilurin fungicide at 1/4 quarter leaf expansion in affected regions and varieties. At petal fall apply copper fungicide to protect against Melanose and Scab. Spray phosphonic acid (e.g. K-Guard/ Aliette ®) on Phytophthora affected trees. This can be mixed with the foliar micronutrient spray. Apply to run off to make sure the foliage is wet; use a sufficient volume of water to ensure good coverage. **Insects:** Only apply insecticides when insect pests are present at damaging or high levels. **Aphids:** If aphids attack more than 20% of young growth (2 out of every 10 shoots) apply Actara @ 4g/10 L of water. **Leaf Miner:** If the block has persistent leaf miner attack or young trees apply Confidor ® @ 35ml/10 L of water or Match® @ 20ml/10 L of water when leaves are emerging (about 5mm). **Lemon Butterfly:** Apply Timer® @ 40ml/10 L of water or spray Deptrix @ 30g/10 L of water.
Fruit set (May - June)		**Nutrition:** Apply the second dose of fertilizer 0.25 kg N and 1kg K_2O before monsoon rains in late May/ Early June. **Disease:** Apply a strobilurin fungicide (e.g. Amistar Top®) three weeks after the petal fall to control scab in affected regions and varieties. Apply a copper spray when fruit is about 8-12 mm in diameter to reduce canker infection. Apply copper when maximum temperature is below 35°C. **Insects: Thrips -** Monitor the calyx of young fruit for the presence of Thrip nymphs. If present at excessive levels apply Confidor®. **Mites -** Monitor during the hot summer period, if at high levels spray a miticide such as Nissorun® @ 300g/100 L of water + Pyridabin® @ 300ml/100 L of water or summer oil at 750ml/100 L of water. Summer oil (e.g. Golden pest oil®) mainly kills young mites only (not very effective on adult mites). It also kills other insects such as scale and it is not harmful to beneficial insects. It must only be applied soon after an irrigation (trees must have adequate water available in the soil) and when temperatures are below 36°C. Good coverage is critical because oil kills the insect by smothering it; apply the spray so all target areas (e.g. fruit and/or branches) are completely dripping. **Caterpillars -** Monitor for caterpillars and apply a spray of Timer® @ 400ml/100L of water if more than 5-10% of fruit are affected. **Citrus Psylla-** If significant numbers are seen (more than one per tree) spray Chlorpyrifos @ 450ml/100L of water.
Fruit Growth (July– Nov)		**Nutrition:** Apply the last dose of fertilizer 0.25 kg N per tree in July prior to rain fall. When summer flush is present and micronutrient deficiency is a problem apply a micronutrient foliar spray hat includes zinc and manganese on young leaves when about 2/3 expanded (See bud break section). **Diseases: Phytophthora** - Spray phosphonic acid (e.g. K-Guard® 35ml/100 L) on affected trees (See bud break section). **Insects: Mites -** See fruit set section. **Leaf miner –** see bud break section. **Disorders:** Apply GA_3 at late July to mid-June to reduce the incidence of albedo breakdown. Use a mixture of 10ppm if incidence is mild and 20ppm for severe problems. **Rind maturity delay:** Apply GA_3 when the fruit colour changes from dark green to light green (colour break; Sept-Oct) to delay rind development so the fruit can be harvested 2-3 weeks later than usual and remain in good condition. **Crop load:** Check the number of fruit in early July with a counting frame and hand thin if crop load is excessive.

Pre-release version

By Wajid Ali (ASLPII), Steven Falivene (NSW DPI), Dr Nerida Donovan (NSW DPI), Tauseef Tahir (ASLPII) and Dr Tahir Khurshid (NSW DPI): Sept 2015