Meadow orcharding in guava

Orange

A survey cum laboratory study was carried out during 2001-2003 to assess nutritional deficiency in mandarin orange orchards of Jhalawar district. The results of investigation showed that soils were silty clay to clay in texture, slightly alkaline in reaction, calcareous having low to medium organic carbon, medium nitrogen and phosphorus and high potassium. The available micronutrients were adequate except iron. But the iron and zinc content in mandarin leaf was in deficient category.

Mango and Aonla

The poor survival of fruit plants has always been a problem in tribal area. Therefore, four low cost micro irrigation systems i.e. pitcher, bottle drip, hollow plastic tube and bucket with drip were on mango and aonla plants at ARS, Banswara and 15 villages of GVT project area. The main aim of the project was to improve the initial establishment of plants (survival) in the period of acute shortage of water. The improved survival percentage (50-65% in mango and 60-80% in aonla) was achieved besides the saving of water up to 48% by employing improved methods as compared to traditional flood irrigation system. Taking the overall cost, performance and adaptability of system, farmers preferred pitcher irrigation system followed by bucket with drip and bottle drip system.

Soft wood grafting in mango

An experiment was conducted during two consecutive years i.e. 2005-06 and 2006-07 on performance of soft wood grafting in different mango varieties under Udaipur conditions. For this one year old root stock (Deshi) and same diameter scion (improved variety) of respective varieties were grafted in month of August. The scion success in poly bags was periodically recorded. It was concluded that the maximum per cent graft success of 80% was found in Kesar followed by Mallika (75%), Langra (75%), Dashehari (70%), Amrapali (70%), Alphanso (60%) and minimum in Himsagar (55%).
Flowering after pruning of plants on 1st November at 60 cm height and sprayed twice with 300 ppm GA₃

Gladiolus

- An assessment of 36 cultivars of gladiolus was done for two years during 2006-07 and 2007-08 at ARS, Udaipur with a view to find out suitable cultivars for southern Rajasthan. The results indicated that cvs. Green Spire and Candiman Red were found to be the best with respect to maximum flowering duration, marketable yield of spikes and for cut flowers to the growers.

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<th>Cultivar Green Spire</th>
<th>Cultivar Candiman Red</th>
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Post Harvest Management of Gladiolus

Gladiolus stand first among bulbous crops and second cutflower crops after rose in our country. To enhance the post harvest life of cut spikes of gladiolus, experiments were conducted at ARS, Udaipur. The findings of the studies are as follows:

- To improve the keeping quality of cut spikes of gladiolus cv. ‘White Prosperity’ holding solution sucrose (4%) + Al₂(SO₄)₃ 300 ppm + NaOCl 25 ppm was best and it gave maximum vase life (5.4 days), per cent floret opened (92.9%) and floret size (7.9 cm). In control minimum vase life (2.9 days), per cent floret opened...
Medicinal and Aromatic Plants

Ashwagandha (*Withania sommiferum*)

- With the view to work out optimum irrigation schedule and N levels for ashwagandha studies were undertaken at ARS, Kota for three years. The result revealed that the root yield of ashwagandha was increased with increase in irrigation levels and a maximum of 9.1 q/ha was recorded in irrigation level of cumulative Pan Evaporation (CPE) of 500 mm as against 4.8 q/ha in no irrigation treatment. Further the root yield was also increased by nitrogen application up to 30 kg/ha by 29.3 per cent over no nitrogen (6.4 q/ha) and thereafter it declined.

- Experiment conducted to evaluate response of Ashwagandha to various plant growth regulators at RCA, Udaipur during 2002-03 and 2003-04 revealed that two sprays of mepiquat chloride at 1000 ppm (at flower initiation stage and 15 days after first spray) significantly increased main root length, main root diameter and dry root yield by 46.1, 16.5 and 39.9 percent, respectively as compared to control. Quality of roots, when judged in terms of total alkaloid content, alkaloid yield, water soluble sugar content, alpha amylase activity and total phenol content was improved significantly by two sprays of mepiquat chloride 1000 ppm, closely followed by two sprays of chlormequat chloride 250 ppm.

Safed Musli (*Chlorophytum borivilianum*)

- For planting of Safed Musli the optimum weight of roots should range between 2 to 6 g. Separation of fleshy roots in the month of April reduced damage of tubers in comparison to February and March. The paired tubers gave more percentage of sprouting and less damage of tubers in storage when compared to individual tubers.

- The fleshy root yield of Safed Musli increased with increasing plant population and maximum of 7.9 q/ha mean yield was recorded in 3.3 lakh/ha plant population treatment as against 5.8 q/ha in 1.7 lakh/ha. Safed musli responded significantly to FYM application up to 30 t/ha which increased the fleshy root yield by 32.9 per cent over no FYM.

- In order to identify appropriate method of planting Safed Musli, an experiment comprising four planting methods i.e. flat beds, ridges, furrows and raised beds was conducted during 2002-03 and 2003-04 at RCA, Udaipur. Results revealed that planting of Safed Musli on the top of ridges (7’ high) at 30 x 15 cm spacing was appropriate method for planting this crop, as the values of roots / plant (9.9) length of roots (8.5 cm), diameter of roots (0.47 cm), fleshy root yield (17.8 q/ha) and sapogenin yield (2.9 kg/ha) were highest in this treatment. The lowest values of all these parameters except roots/ plant were observed in raised beds.
Medicinal & Aromatic Plants

Isabgol
- Improved cultivation package of practices.
- Three irrigations at tiller initiation, full tiller and at 75 per cent flowering with two sprays of brassinosteroid.
- Planting of isabgol on ridge 7" high at 30 x 15 cm spacing.
- The optimum time for sowing of isabgol is 3rd week of November to reduce incidence of downy mildew.

Ashwagandha
- One irrigation at 135-145 days after sowing and nitrogen at 30 kg/ha for good quality roots in Ashwagandha.
- Sowing of Ashwagandha crop during 37th meteorological week (Sept. 10-16) and harvesting during 7th meteorological week (Feb. 12-18) were found most suitable. However, under rainfed conditions (without irrigation), sowing should be done in the 35th meteorological week (August 27-Sept. 2) and harvesting in 7th meteorological week.

Opium poppy
- To control downy mildew in opium poppy package developed includes (i) sowing in last week of October (ii) treat seed with apron 50 SD at 8 g/kg seed (iii) apply sulphur dust at 40 kg/ha + 40 kg K₂O/ha at sowing (iv) spray metalaxyl 0.2 per cent at 35, 55 and 75 DAS.

Safed musli
- Application of elemental sulphur at 150 kg/ha in to the soil 15 days before sowing to get maximum fresh root yield of safed musli, sapogenine content and sapogenine yield.

Spices

Coriander
- Variety - RCr 684
- Apply 30 kg P₂O₅ and 5.0 kg Zn/ha
- 50 per cent fertilizer N can be saved by the use of compost equivalent to 25 per cent N to RDF and biofertilizers (Azotobacter and PSB) without deteriorating soil fertility and crop productivity.
- Two irrigations at branching and pod formation and application of S and Zn at 50 kg and 10 kg per ha respectively (in S and Zn deficient areas).

Sua and Ajwain
- Ridger ploughing is better over normal ploughing.
- Application of 750 ml/ha pendimethalin just after sowing followed by intercultural operation after 30 days to control weeds in Ajwain.