



**Figure 8.** Liquid sidedress fertilizer applicators.

with approximately 20 percent of the nitrogen and potassium. Place the remaining nitrogen and potassium in a band in the bed 1 to 2 inches deep and cover with a strip of polyethylene mulch. The mulch strip (10 to 12 inches wide) is placed over the fertilizer band in an inverted "U" fashion. The fertilizer placement and mulch application can be mechanized.

**Supplemental applications.** The use of supplemental fertilizer depends mainly on the amount of rainfall and the length of the season. The need for supplemental fertilizer will be minimized when the soil-test-predicted fertilizer requirements are properly managed to reduce losses to leaching. In most cases, nitrogen and potassium are of most concern because of leaching, although sidedressing of phosphorus might be needed on the phosphate-fixing calcareous Rockdale, especially during cool periods. If required, supplemental applications of nitrogen and potassium should be made as a band or swath just ahead of the advancing root system. Place the fertilizer deep enough in the soil to be in contact with moisture. In many cases, liquid fertilizers are easiest to use and can be easily knifed into the soil (Fig. 8). Sidedress applications must only be made when there is no danger of shoot or root damage from the fertilizer application machinery.

**Fertilizer placement (mulched crops).** When using plastic mulch, fertilizer placement depends on the type of irrigation system (seep or overhead) and on whether drip tubing or the liquid fertilizer injection wheel are to be used.

With overhead irrigation, all fertilizer can be incorporated in the bed before mulch application. However, when high amounts of fertilizer are required, such as on virgin soil, a portion of the fer-

tilizer can be banded to reduce salt damage. The fertilizer for crops grown on Rockdale soils can be banded, although recent research has shown equal or better yields by some crops with incorporation in the bed.

With seep irrigation, all phosphorus and micronutrients should be incorporated in the bed. Apply 10 to 20 percent (but not more) of the nitrogen and potassium with the phosphorus. The remaining nitrogen and potassium should be placed in narrow bands on the bed shoulders, the number of which depend on the crop and number of rows per bed. These bands should be placed in shallow (1- to 1½ inch deep) grooves (Fig. 9). This placement requires that adequate bed moisture be maintained so that capillarity is not broken. Otherwise, fertilizer will not move to the root zone.

However, excess moisture can result in fertilizer leaching. Fertilizer and water management programs are linked. Maximum fertilizer efficiency is achieved only with close attention to water management.

Under either system above, fertilizing with drip irrigation or with a liquid fertilizer injection wheel might be suitable alternatives to the placement of all nitrogen and potassium in or on the bed prior to mulching.



**Figure 9.** Placement of nitrogen and potassium fertilizer in bands in surface grooves for seep-irrigated, full-bed mulched tomatoes in Collier County.