To accurately determine the average sprinkler flow rate in an irrigated zone, measure several sprinklers (approximately 12 to 18). Some of the sprinklers measured should be near the inlet ends of the laterals, some near the center, and some at the distant ends. If the measured values are highly variable (more than ± 15% from the average), the number of sprinklers tested should be increased.

If different sizes of sprinklers or nozzles are used in a zone, such as part-circle sprinklers at field boundaries, flow rates must be determined separately for each size. The total zone flow rate can then be determined by adding the average flow rates for the total number of sprinklers of each size in the zone. Finally, Equation (1) can be used to calculate the average application rate for the zone.

3. Measure the application rate directly with catch cans or rain gauges. The average application rate is then the average depth of water measured divided by the time during which the data were collected.

Because water is never applied with perfect uniformity under a sprinkler irrigation system, several catch cans must be placed between adjacent sprinklers. Normally, at least 16 to 24 cans should be used. To simplify later uniformity calculations, use a number of cans that is a multiple of 4. Also, these tests should be conducted under the same conditions as those during typical applications. Avoid making tests during high wind conditions because wind distorts sprinkler patterns.

Figure 2 shows a typical layout of catch cans for uniformity measurements between the four sprinklers shown. The 16 cans are evenly spaced between sprinklers so that each is centered within and represents equal land areas. The numbers shown adjacent to the catch cans in Figure 2 are example catch can data which are used in later example problems.

Catch cans should all be of the same size and type, and should be placed upright so that their tops are level. Cans should be located on or near the soil surface, but above any vegetation which might obstruct access to the cans. For annual crops, schedule catch can tests when plants are small so that they do not interfere with the tests.

For large perennial plants such as citrus or other tree crops, catch can tests may be very difficult to conduct because of the need to elevate the cans above the canopies. Tests with cans under tree canopies are not appropriate because the canopies will distort the water distribution. If large unobstructed areas are available between trees, these areas may be used to estimate uniformities. This might be the case with young citrus trees. However, as trees grow, the tall