Cultural weed control is the basis on which an integrated system of weed management in organic peanut is based. The cultural practices evaluated for weed control were row patterns and seeding rates, integrated with cultivation intensity. Results showed that peanut seeded in wide rows (two rows, 91 cm apart), at a density of 20 seed/m, and cultivated weekly for at least 6-wk was the most effective regime evaluated. Weeds were not effectively controlled in peanut seeded in twin rows (two pairs of rows, each pair 46 cm apart with each row in the pair 17 cm apart) at a density of 10 seed/m. However, when peanut in twin-row patterns were seeded at 20 seed/m, weeds were controlled by intense cultivation with a tine weeder. These results suggest that in-row plant spacing is critical for successful weed control with cultivation and independent of row pattern. Peanut seeded at 20 seed/m improved crop competition with weeds and greatly facilitated overall weed control with cultivation. It was noted that cultivation needed to be initiated before weed emergence, which coincided with peanut emergence (‘cracking’). Weeds already emerged were not consistently controlled with the tine weeder, regardless of the duration or frequency of cultivation. These basic concepts were also proven to be effective in transition to organic production in plantings of millet and southern pea.