Different interstock combinations have been investigated for different purposes in apple growing so far. Some of them are still being applied in practice and positive results are observed. This study has been conducted to determine the effects of different variety/interstock/rootstock combinations on some physiological characteristics in apple nursery trees. For this purpose, Fuji (vigor) and Red Chief (spur) apple varieties have been grafted using three different interstock/rootstock combinations (MM106/M9, MM106/seedling, M9/seedling). The cultivar ‘Fuji’ had higher total leaf area than ‘Red Chief’. Interstock/rootstock combinations did not have a significant effect on the leaf area. Root carbohydrate was detected as higher concentration than leave in both cultivars. On the other hand, N concentration of roots was lower than the leaves. Generally CH:N of leaf was high in nursery trees grafted on seedling. There were no significant differences among the interstock/rootstock combinations in terms of the total carbohydrates, C:N ratio, chlorophyll. However, it has been determined that cultivars have significant effects on these parameters.