

The effect of gibberellin application on the process of appendage formation and flower bud formation was studied in buds from light-flowering 'Pacific Rose' apple trees. GA_3 was applied at 300 mg l^{-1} on four dates from full bloom to eight weeks later, and buds were dissected on 11 dates from 40 to 140 d after full bloom. In a second experiment, GA_3 was applied at 100, 200 and 300 mg l^{-1} and GA_{4+7} at 100 and 200 mg l^{-1} , all at two weeks after full bloom. Buds from this experiment were dissected 100 d after full bloom and again 140 d after FB. Appendage formation for vegetative buds could be described by a negative asymptotic curve that reached a maximum value of 16.4 appendages. Flower bud initiation peaked in the period 90-100 d after full bloom and was completed within a 20 d period, reaching a maximum of 18.2 appendages. In both trials appendage formation was affected by bud size, which, in return, was strongly affected by GA treatments. The effect was most noticeable in the second experiment, where the majority of buds were both small and immature looking 100 d after full bloom. The rate of appendage formation in these buds was reduced, corresponding to a delay of up to 20 d. Concomitantly, flower bud initiation was delayed and prolonged. The status of the buds was affected by all GA treatments applied at two weeks after full bloom, but the effect was more pronounced in the small buds. Flower bud formation was generally over-estimated in bud samples compared with flower counts in the spring, and this posed a problem when evaluating the effect of gibberellin on appendage formation.