

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  $300 \text{ mg l}^{-1}$  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  $300 \text{ mg l}^{-1}$  and  $GA_{4+7}$  at 100 and  $200 \text{ mg l}^{-1}$ , 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.