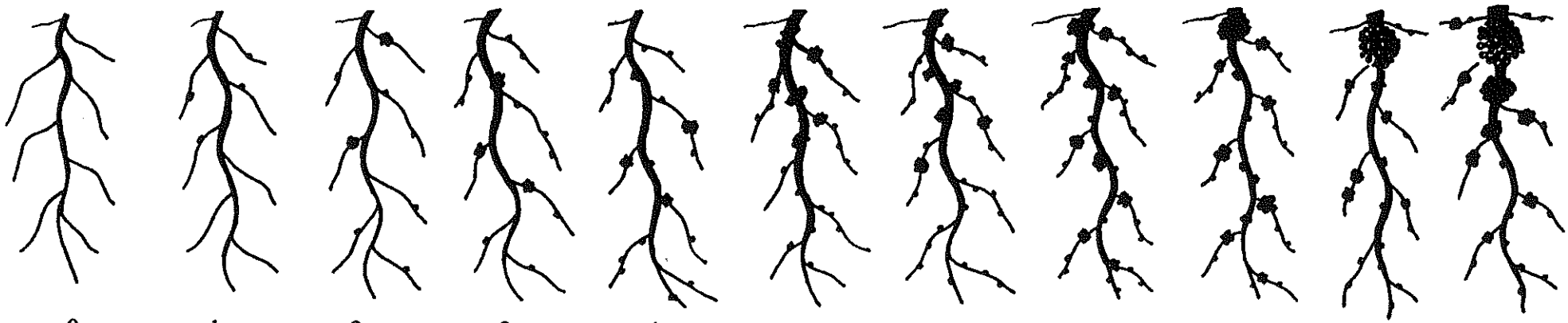
Nodule Rating System - Pulses

Our assessment of nodulation consists of scoring and counting nodules on individual plants. Nodulation assessments are usually done at 7 – 8 weeks after sowing and are sometimes followed by another assessment at 13 – 15 weeks for grain legume species.

Plants are carefully dug up (usually a 20 – 50 plant sample per plot or paddock) and any loose soil is gently shaken off. The plants are then placed in large plastic or paper bags and transported back to the lab where they are thoroughly washed out with water. Care has to be taken throughout this procedure to avoid knocking any nodules off the roots.

Nodulation is scored according to the number, size and distribution of nodules on the root system. The basis for our scoring is the following scale:

Nodulation Scores



0	1	2	3	4	5	6	7	8	9	10
No nodules	<5 nodules or 1 large nodule	<10 nodules or 2 large nodules	<15 nodules or 3 large nodules	<20 nodules or 4 large nodules	<25 nodules or 5 large nodules	>25 nodules or >5 large nodules	Crown nod'n incomplete or >30 nodules	Crown nod'n < 1 cm^3	C rown nod'n > 1cm^3	>2Crown nodules >1 cm^3

Nodule scores of 1 to 6 indicate the number of individual nodules, mainly found on the lateral roots. Scores of 7 to 10 indicate crown nodulation which usually occurs on the tap root just below the seed. Crown nodulation consists of a large nodule or tightly packed group of nodules which completely encircles the tap root close to the seed. Large nodules score higher than small nodules and the size of large nodules varies between species. For example a faba bean nodule is classified large if it is larger than the size of a normal garden pea, whereas a large lentil nodule is only half the size. Large chickpea nodules are usually clusters of 6 – 20 small nodules and may be fan, clover leaf or walnut shaped. The latter shape is common as a crown nodule. The exact number of nodules per plant is also recorded for grain legumes.

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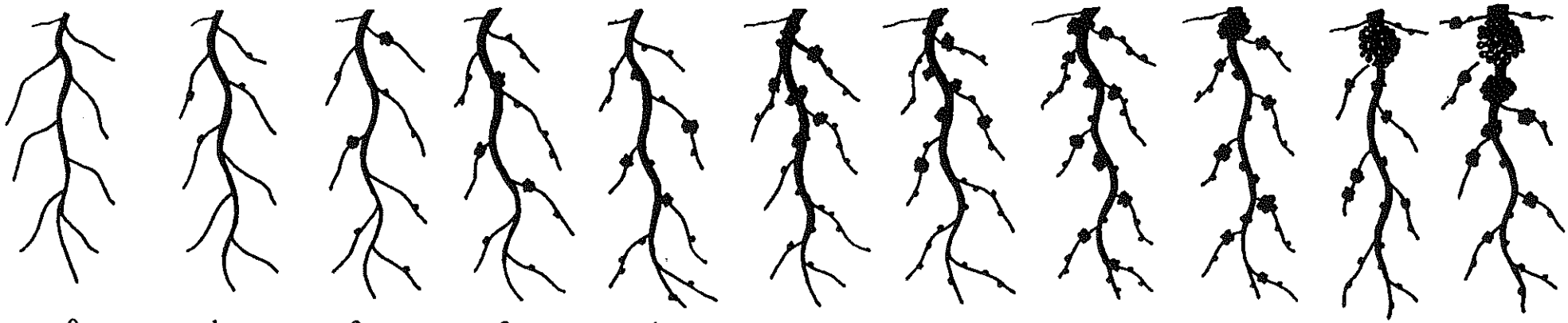

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