

國立嘉義大學九十五學年度博士班入學考試試題

所別：農學研究所
組別：甲組
科目：農學專業英文

一、請將下列短文翻譯成中文(25%)

Ecology is the scientific study of the interactions between organisms and their environment. Landscape ecology is a sub-discipline of ecology, focusing on spatial relationships and the interactions between patterns and processes. The term 'landscape ecology' was coined by a German geographer, Carl Troll in 1939. Landscape ecology was developed in Europe and has a rich tradition in landscape planning and in the study of human-dominated landscapes. Landscape ecology in North America developed later than in Europe, is more derived from ecosystem ecology, and makes greater use of computer methods such as remote sensing, GIS, and simulation models. This led recently to the development of powerful quantitative methods to examine the interactions of patterns and processes.

二、請將下列短文翻譯成中文(25%)

Essential oils, or 'essences' as they are also called, are highly concentrated substances extracted from various parts of aromatic plants and trees. They are usually captured by steam distillation, a process whose origins can be traced back to ancient Mesopotamia. Unlike ordinary vegetable oils, such as corn and olive, plant essences are highly volatile and will evaporate if left in the open air. The chemistry of essential oils is complex. Most consist of hundreds of components, such as terpenes, alcohols, aldehydes, and esters. For this reason a single oil can help a wide variety of disorders. Lavender, for instance, is endowed with antiseptic, antibacterial, antibiotic, antidepressant, analgesic, decongestant and sedative properties. Moreover, due to their tiny molecular structure, essential oils applied to the skin can be absorbed into the bloodstream.

三、請將下列短文翻譯成中文（畫底線的專有名詞可直接使用英文）(25%)

Erythronium japonicum (Liliaceae) (Japanese name, katakuri) is indigenous to Japan and adjacent Far East regions. We examined their embryo elongation, germination, and seedling emergence in relationship to the temperature.

In incubators, seeds did not germinate at 20°/10° (light 12 h/dark 12 h alternating temperature), 20°, 15°, 5° or 0°C with a 12-h light photoperiod for 200 d. They germinated at 15°/5° or 10°C, starting on day 135. If seeds were kept at 20° or at 25°/15°C before being exposed to 5°C, the seeds germinated, but if kept at 25° or 30°C

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they did not. Embryos at 25°/15°C grew to half the seed length without germinating; at 0° or 5°C, embryos elongated little. Embryos grew and seeds germinated when kept at 25°/15°C for 90 d and then at 5°C. In the field, seeds are dispersed in mid-June in Hokkaido (北海道) and in Honshu (本州), mid-May to mid-June. Seeds do not germinate immediately after dispersal because the embryo is underdeveloped. Embryos elongated at medium temperatures in autumn after summer heat, and germination ends in November at 8°/0°C. After germination, seedling emergence was delayed, and most seedlings were observed in early April around the snowmelt when soil cover was 2-3mm.

四、請將下列短文翻譯成中文(25 %)

A plant breeder looks at a plant or looks at the data obtained by measuring a characteristic such as seed production and thinks, “I like what I have found so far; maybe I should evaluate this again. If true, this would be great”. But even with the sense of excitement comes a note of caution, because what you see isn’t always what you get. What you see or what you measure is the phenotype of the plant. The phenotype is controlled by two factors, the underlying genotype and how the environment affects the expression of that genotype.

One of the great success stories in agriculture has been the tremendous yield increases achieved by coupling high-yield varieties and improved agricultural production technologies, creating the Green Revolution. Plant breeders are working to extend the Green Revolution by intensifying selection, developing hybrid varieties in more crops, and increasing the range of plant functions through mutation and transgenic breeding. Crop plants can still be improved in many ways, including, in part, (1) increased yield through improved plant growth processes, (2) improved crop quality, (3) increased disease and stress tolerance, and (4) enhanced processing characteristics.