

Memorization-Fundamental Principles

题目：利用害虫的病原微生物及其代谢产物来防治害虫称为（）。

(Question: The use of pathogens and their metabolic products to control pests is referred to as ().)

A: 以菌治菌 (Bacterial control of bacteria)

B: 以菌治病 (Bacterial control of diseases)

C: 以菌治虫 (Bacterial control of pests)

D: 以虫治虫 (Biological control of pests by pests)

E: 以虫导病 (Insect-mediated disease transmission)

F: 生物防治 (Biological control)

G: 微生物拮抗 (Microbial antagonism)

Inference-Numerical Reasoning

题目：田间调查某地块玉米螟对玉米危害所造成的损失,抽样调查200株,其中有20株被玉米螟为害,平均每健株产量为100克,被害株产量为80克,则该地块玉米的产量损失百分率为()。

(Question: A field survey was conducted to assess the damage caused by the corn borer to maize in a specific plot. A sample of 200 plants was surveyed, of which 20 plants were affected by the corn borer. The average yield per healthy plant was 100 grams, while the yield of affected plants was 80 grams. What is the percentage of yield loss for maize in this plot ?)

A: 10%

B: 20%

C: 40%

D: 2%

E: 8%

F: 15%

G: 5%

Generation-production strategy formulation

题目：已知苏南某圩区， $F = 3.8 \text{ km}^2$ ，其中旱地占20%，水田占80%。水田日耗水 $e = 5 \text{ mm/d}$ ，水田滞蓄30mm，旱地径流系数为0.6。排涝标准采用1日暴雨200mm，2天排除，水泵每天工作时间22小时。求泵站设计排涝流量 Q 和综合设计排涝模数 q 。

(Question: In a polder area in southern Jiangsu, the total area is $F = 3.8 \text{ km}^2$, with 20% dryland and 80% paddy field. The daily water consumption of the paddy field is $e = 5 \text{ mm/d}$, and the water storage depth is $h_{\text{storage}} = 30 \text{ mm}$. The runoff coefficient for dryland is $\alpha = 0.6$. The drainage is designed for a 200 mm storm over one day, to be drained in 2 days. The pump operates 22 hours per day. Compute the design discharge Q and the comprehensive drainage modulus q .)

计算步骤：

$$R_{\text{水田}} = P - h_{\text{田蓄}} - eT = 200 - 30 - 5 \times 2 = 160 \text{ mm}$$

$$R_{\text{旱田}} = \alpha P = 0.6 \times 200 = 120 \text{ mm}$$

$$Q = \frac{R_{\text{水田}} \cdot F_{\text{水田}} + R_{\text{旱田}} \cdot F_{\text{旱田}}}{3.6 \cdot T_t} = \frac{160 \cdot 3.8 \cdot 0.8 + 120 \cdot 3.8 \cdot 0.2}{3.6 \cdot 2 \cdot 22} = 3.65 \text{ m}^3/\text{s}$$

$$q = \frac{Q}{F} = \frac{3.65}{3.8} = 0.96 \text{ m}^3/\text{km}^2$$

(Solution: Water accumulation on paddy fields: $R_{\text{paddy}} = P - h_{\text{storage}} - eT = 200 - 30 - 5 \times 2 = 160 \text{ mm}$)

Runoff from dryland: $R_{\text{dry}} = \alpha P = 0.6 \times 200 = 120 \text{ mm}$

Design discharge of the pump station: $Q = \frac{R_{\text{paddy}} \cdot F_{\text{paddy}} + R_{\text{dry}} \cdot F_{\text{dry}}}{3.6 \cdot T_t} = \frac{160 \cdot 3.8 \cdot 0.8 + 120 \cdot 3.8 \cdot 0.2}{3.6 \cdot 2 \cdot 22} = 3.65 \text{ m}^3/\text{s}$

Comprehensive drainage modulus: $q = \frac{Q}{F} = \frac{3.65}{3.8} = 0.96 \text{ m}^3/\text{km}^2$)

答案：泵站设计排涝流量为3.65m³/s，综合设计排涝模数为0.96m³/km²。

Answer: The design discharge of the pump station is $3.65 \text{ m}^3/\text{s}$, and the comprehensive drainage modulus is 0.96

m^3/km^2 .