



```

graph TD
    A["1.5  
100%"] -- yes --> B["1.5  
96%"]
    A -- no --> C["2.2  
4%"]
    B -- "Plant height (m) < 3.9" --> D["1.4  
69%"]
    B -- "Plant height (m) >= 3.9" --> E["1.6  
27%"]
    C -- "Ovary number >= 1650" --> F["1.7  
24%"]
    C -- "Ovary number < 1650" --> G["1.7  
21%"]
    D -- "Flowers per plant < 950" --> H["1.4  
56%"]
    D -- "Flowers per plant >= 950" --> I["1.6  
13%"]
    E -- "Plant height (m) >= 13" --> J["1.7  
24%"]
    E -- "Plant height (m) < 13" --> K["1.3  
3%"]
    F -- "Ovary number < 1.5" --> L["1.7  
21%"]
    F -- "Ovary number >= 1.5" --> M["1.5  
4%"]
    H -- "Style length (mm) >= 33" --> N["0.92  
1%"]
    H -- "Style length (mm) < 33" --> O["1.4  
55%"]
    J -- "Style length (mm) >= 5.5" --> P["1.8  
17%"]
    J -- "Style length (mm) < 5.5" --> Q["1.7  
1%"]
    O -- "Style length (mm) < 15" --> R["1.6  
5%"]
    O -- "Style length (mm) >= 15" --> S["1.4  
50%"]
    P -- "Style length (mm) < 15" --> T["2.4  
3%"]
    P -- "Style length (mm) >= 15" --> U["1.3  
3%"]
  
```

The decision tree starts with the root node: **Plant height (m) < 1.9** (100%).

- yes** branch: **1.4** (67%)
  - Nectar concentration (%) < 16**
    - yes** branch: **1.2** (24%)
      - Flowers per plant >= 7.5**
        - yes** branch: **1.2** (21%)
        - no** branch: **1.7** (2%)
    - no** branch: **1.4** (44%)
      - Style length (mm) < 14**
        - yes** branch: **1.4** (37%)
          - Plant height (m) < 0.36**
            - yes** branch: **1.2** (11%)
              - Style length (mm) >= 8.1**
                - yes** branch: **1.3** (8%)
                - no** branch: **1.5** (26%)
            - no** branch: **1.7** (7%)
          - no** branch: **1.6** (29%)
  - no** branch: **1.6** (33%)
    - Nectar concentration (%) < 29**
      - yes** branch: **1.6** (29%)
      - no** branch: **2** (4%)

Decision tree for the classification of plant species based on morphological traits. The tree starts with the root node 'Ovule number < 988' (0.15, 100%). If 'yes', it leads to a leaf node '0.14' (95%). If 'no', it leads to a leaf node '0.28' (5%). The 'yes' branch further splits on 'Style length (mm) >= 5.9'. If 'yes', it leads to a leaf node '0.12' (32%). If 'no', it leads to a leaf node '0.11' (12%). The 'no' branch further splits on 'Plant height (m) < 0.39'. If 'yes', it leads to a leaf node '0.13' (10%). If 'no', it leads to a leaf node '0.17' (17%). The 'no' branch further splits on 'Flowers per plant >= 4500'. If 'yes', it leads to a leaf node '0.18' (17%). If 'no', it leads to a leaf node '0.16' (24%). The 'no' branch further splits on 'Aut. selfing >= 6.4'. If 'yes', it leads to a leaf node '0.21' (17%). If 'no', it leads to a leaf node '0.17' (12%). The 'no' branch further splits on 'Ovule number >= 30'. If 'yes', it leads to a leaf node '0.29' (5%). If 'no', it leads to a leaf node '0.12' (1%). The 'no' branch further splits on 'Ovule number < 76'. If 'yes', it leads to a leaf node '0.33' (4%). If 'no', it leads to a leaf node '0.12' (1%).

```

graph TD
    Root["0.15  
100%"] -- yes --> Node1["0.14  
95%"]
    Root -- no --> Node2["0.28  
5%"]
    Node1 -- "Style length (mm) >= 5.9" --> Node3["0.12  
32%"]
    Node1 -- "Style length (mm) < 5.9" --> Node4["0.11  
12%"]
    Node2 -- "Style length (mm) < 5.9" --> Node5["0.16  
63%"]
    Node5 -- "Plant height (m) < 0.39" --> Node6["0.17  
51%"]
    Node5 -- "Plant height (m) >= 0.39" --> Node7["0.13  
10%"]
    Node6 -- "Flowers per plant >= 4500" --> Node8["0.18  
41%"]
    Node6 -- "Flowers per plant < 4500" --> Node9["0.16  
24%"]
    Node8 -- "Aut. selfing >= 6.4" --> Node10["0.21  
17%"]
    Node8 -- "Aut. selfing < 6.4" --> Node11["0.17  
12%"]
    Node9 -- "Aut. selfing >= 6.4" --> Node12["0.21  
17%"]
    Node9 -- "Aut. selfing < 6.4" --> Node13["0.17  
12%"]
    Node10 -- "Ovule number >= 30" --> Node14["0.29  
5%"]
    Node10 -- "Ovule number < 30" --> Node15["0.12  
1%"]
    Node11 -- "Ovule number >= 30" --> Node16["0.29  
5%"]
    Node11 -- "Ovule number < 30" --> Node17["0.12  
1%"]
    Node12 -- "Ovule number >= 30" --> Node18["0.33  
4%"]
    Node12 -- "Ovule number < 30" --> Node19["0.12  
1%"]
    Node13 -- "Ovule number >= 30" --> Node20["0.29  
5%"]
    Node13 -- "Ovule number < 30" --> Node21["0.12  
1%"]
    Node14 -- "Ovule number < 76" --> Node22["0.12  
1%"]
    Node14 -- "Ovule number >= 76" --> Node23["0.33  
4%"]
    Node15 -- "Ovule number < 76" --> Node24["0.12  
1%"]
    Node15 -- "Ovule number >= 76" --> Node25["0.33  
4%"]
    Node16 -- "Ovule number < 76" --> Node26["0.12  
1%"]
    Node16 -- "Ovule number >= 76" --> Node27["0.33  
4%"]
    Node17 -- "Ovule number < 76" --> Node28["0.12  
1%"]
    Node17 -- "Ovule number >= 76" --> Node29["0.33  
4%"]
    Node18 -- "Ovule number < 76" --> Node30["0.12  
1%"]
    Node18 -- "Ovule number >= 76" --> Node31["0.33  
4%"]
    Node19 -- "Ovule number < 76" --> Node32["0.12  
1%"]
    Node19 -- "Ovule number >= 76" --> Node33["0.33  
4%"]
    Node20 -- "Ovule number < 76" --> Node34["0.12  
1%"]
    Node20 -- "Ovule number >= 76" --> Node35["0.33  
4%"]
    Node21 -- "Ovule number < 76" --> Node36["0.12  
1%"]
    Node21 -- "Ovule number >= 76" --> Node37["0.33  
4%"]
    Node22 -- "Ovule number < 76" --> Node38["0.12  
1%"]
    Node22 -- "Ovule number >= 76" --> Node39["0.33  
4%"]
    Node23 -- "Ovule number < 76" --> Node40["0.12  
1%"]
    Node23 -- "Ovule number >= 76" --> Node41["0.33  
4%"]
    Node24 -- "Ovule number < 76" --> Node42["0.12  
1%"]
    Node24 -- "Ovule number >= 76" --> Node43["0.33  
4%"]
    Node25 -- "Ovule number < 76" --> Node44["0.12  
1%"]
    Node25 -- "Ovule number >= 76" --> Node45["0.33  
4%"]
    Node26 -- "Ovule number < 76" --> Node46["0.12  
1%"]
    Node26 -- "Ovule number >= 76" --> Node47["0.33  
4%"]
    Node27 -- "Ovule number < 76" --> Node48["0.12  
1%"]
    Node27 -- "Ovule number >= 76" --> Node49["0.33  
4%"]
    Node28 -- "Ovule number < 76" --> Node50["0.12  
1%"]
    Node28 -- "Ovule number >= 76" --> Node51["0.33  
4%"]
    Node29 -- "Ovule number < 76" --> Node52["0.12  
1%"]
    Node29 -- "Ovule number >= 76" --> Node53["0.33  
4%"]
    Node30 -- "Ovule number < 76" --> Node54["0.12  
1%"]
    Node30 -- "Ovule number >= 76" --> Node55["0.33  
4%"]
    Node31 -- "Ovule number < 76" --> Node56["0.12  
1%"]
    Node31 -- "Ovule number >= 76" --> Node57["0.33  
4%"]
    Node32 -- "Ovule number < 76" --> Node58["0.12  
1%"]
    Node32 -- "Ovule number >= 76" --> Node59["0.33  
4%"]
    Node33 -- "Ovule number < 76" --> Node60["0.12  
1%"]
    Node33 -- "Ovule number >= 76" --> Node61["0.33  
4%"]
    Node34 -- "Ovule number < 76" --> Node62["0.12  
1%"]
    Node34 -- "Ovule number >= 76" --> Node63["0.33  
4%"]
    Node35 -- "Ovule number < 76" --> Node64["0.12  
1%"]
    Node35 -- "Ovule number >= 76" --> Node65["0.33  
4%"]
    Node36 -- "Ovule number < 76" --> Node66["0.12  
1%"]
    Node36 -- "Ovule number >= 76" --> Node67["0.33  
4%"]
    Node37 -- "Ovule number < 76" --> Node68["0.12  
1%"]
    Node37 -- "Ovule number >= 76" --> Node69["0.33  
4%"]
    Node38 -- "Ovule number < 76" --> Node70["0.12  
1%"]
    Node38 -- "Ovule number >= 76" --> Node71["0.33  
4%"]
    Node39 -- "Ovule number < 76" --> Node72["0.12  
1%"]
    Node39 -- "Ovule number >= 76" --> Node73["0.33  
4%"]
    Node40 -- "Ovule number < 76" --> Node74["0.12  
1%"]
    Node40 -- "Ovule number >= 76" --> Node75["0.33  
4%"]
    Node41 -- "Ovule number < 76" --> Node76["0.12  
1%"]
    Node41 -- "Ovule number >= 76" --> Node77["0.33  
4%"]
    Node42 -- "Ovule number < 76" --> Node78["0.12  
1%"]
    Node42 -- "Ovule number >= 76" --> Node79["0.33  
4%"]
    Node43 -- "Ovule number < 76" --> Node80["0.12  
1%"]
    Node43 -- "Ovule number >= 76" --> Node81["0.33  
4%"]
    Node44 -- "Ovule number < 76" --> Node82["0.12  
1%"]
    Node44 -- "Ovule number >= 76" --> Node83["0.33  
4%"]
    Node45 -- "Ovule number < 76" --> Node84["0.12  
1%"]
    Node45 -- "Ovule number >= 76" --> Node85["0.33  
4%"]
    Node46 -- "Ovule number < 76" --> Node86["0.12  
1%"]
    Node46 -- "Ovule number >= 76" --> Node87["0.33  
4%"]
    Node47 -- "Ovule number < 76" --> Node88["0.12  
1%"]
    Node47 -- "Ovule number >= 76" --> Node89["0.33  
4%"]
    Node48 -- "Ovule number < 76" --> Node90["0.12  
1%"]
    Node48 -- "Ovule number >= 76" --> Node91["0.33  
4%"]
    Node49 -- "Ovule number < 76" --> Node92["0.12  
1%"]
    Node49 -- "Ovule number >= 76" --> Node93["0.33  
4%"]
    Node50 -- "Ovule number < 76" --> Node94["0.12  
1%"]
    Node50 -- "Ovule number >= 76" --> Node95["0.33  
4%"]
    Node51 -- "Ovule number < 76" --> Node96["0.12  
1%"]
    Node51 -- "Ovule number >= 76" --> Node97["0.33  
4%"]
    Node52 -- "Ovule number < 76" --> Node98["0.12  
1%"]
    Node52 -- "Ovule number >= 76" --> Node99["0.33  
4%"]
    Node53 -- "Ovule number < 76" --> Node100["0.12  
1%"]
    Node53 -- "Ovule number >= 76" --> Node101["0.33  
4%"]
    Node54 -- "Ovule number < 76" --> Node102["0.1
```

```

graph TD
    Root((0.15  
100%)) -->|yes| Node1((0.13  
87%))
    Root -->|no| Node2((0.26  
13%))
    Node1 -->|Pollen grains per flower >= 5515| Node3((0.12  
75%))
    Node1 -->|Pollen grains per flower < 5515| Node4((0.16  
14%))
    Node2 -->|Plant height (m) < 0.4| Node5((0.29  
9%))
    Node2 -->|Plant height (m) >= 0.4| Node6((0.27  
8%))
    Node3 -->|Nectar concentration (%) < 30| Node7((0.12  
61%))
    Node3 -->|Nectar concentration (%) >= 30| Node8((0.14  
13%))
    Node4 -->|Pollen grains per flower < 342e+3| Node9((0.31  
2%))
    Node4 -->|Pollen grains per flower >= 342e+3| Node10((0.2  
12%))
    Node5 -->|Mg of nectar >= 0.078| Node11((0.4  
2%))
    Node5 -->|Mg of nectar < 0.078| Node12((0.19  
4%))
  
```

Decision tree structure and node values:

- Root Node: 0.15 (100%)
  - yes: 0.13 (87%)
    - Pollen grains per flower  $\geq 5515$ : 0.12 (75%)
      - Nectar concentration (%)  $< 30$ : 0.12 (61%)
      - Nectar concentration (%)  $\geq 30$ : 0.14 (13%)
    - Pollen grains per flower  $< 5515$ : 0.16 (14%)
      - Pollen grains per flower  $< 342e+3$ : 0.31 (2%)
      - Pollen grains per flower  $\geq 342e+3$ : 0.2 (12%)
  - no: 0.26 (13%)
    - Plant height (m)  $< 0.4$ : 0.29 (9%)
      - Mg of nectar  $\geq 0.078$ : 0.4 (2%)
      - Mg of nectar  $< 0.078$ : 0.19 (4%)
    - Plant height (m)  $\geq 0.4$ : 0.27 (8%)

The decision tree starts with the root node: **Plant height (m)  $\geq 2.1$** . If **yes**, the probability is 0.43 (100%). If **no**, the probability is 0.5 (63%).

From the **no** branch, the next node is **Aut. selfing  $\geq 87$** . If **yes**, the probability is 0.51 (59%). If **no**, the probability is 0.48 (2%).

From the **yes** branch of **Aut. selfing  $\geq 87$** , the next node is **Flowers per plant  $\geq 75$** . If **yes**, the probability is 0.67 (5%). If **no**, the probability is 0.78 (3%).

From the **yes** branch of **Flowers per plant  $\geq 75$** , the next node is **Flower width  $\geq 9$** . If **yes**, the probability is 0.97 (2%). If **no**, the probability is 0.57 (2%).

From the **no** branch of **Aut. selfing  $\geq 87$** , the next node is **Aut. selfing  $< 23$** . If **yes**, the probability is 0.49 (54%). If **no**, the probability is 0.35 (4%).

From the **yes** branch of **Aut. selfing  $\geq 87$** , the next node is **Aut. selfing  $\geq 4.3$** . If **yes**, the probability is 0.37 (20%). If **no**, the probability is 0.25 (17%).

From the **yes** branch of **Aut. selfing  $\geq 4.3$** , the next node is **Flowers per plant  $\geq 68$** . If **yes**, the probability is 0.35 (18%). If **no**, the probability is 0.57 (2%).

The final probabilities for each leaf node are: 0.43 (100%), 0.5 (63%), 0.51 (59%), 0.48 (2%), 0.67 (5%), 0.78 (3%), 0.97 (2%), 0.57 (2%), 0.49 (54%), 0.35 (4%), 0.37 (20%), 0.25 (17%), 0.35 (18%), and 0.57 (2%).

```

graph TD
    Root["Plant height (m) >= 1.3"]
    Root -- yes --> L1_0.43["0.43  
100%"]
    Root -- no --> L2_PGF["Pollen grains per flower < 14e+3"]
    L2_PGF -- yes --> L3_0.43["0.43  
100%"]
    L2_PGF -- no --> L4_ON["Ovule number >= 4.8"]
    L4_ON -- yes --> L5_SL["Style length (mm) >= 15"]
    L4_ON -- no --> L6_0.64["0.64  
10%"]
    L5_SL -- yes --> L7_0.51["0.51  
35%"]
    L5_SL -- no --> L8_SL2["Style length (mm) < 3.3"]
    L8_SL2 -- yes --> L9_NC["Nectar concentration (%) >= 31"]
    L8_SL2 -- no --> L10_0.59["0.59  
16%"]
    L9_NC -- yes --> L11_0.53["0.53  
31%"]
    L9_NC -- no --> L12_FW["Flower width >= 15"]
    L12_FW -- yes --> L13_0.71["0.71  
9%"]
    L12_FW -- no --> L14_0.48["0.48  
4%"]
    L10_0.59 -- yes --> L15_0.47["0.47  
15%"]
    L10_0.59 -- no --> L16_0.45["0.45  
7%"]
    L13_0.71 -- yes --> L17_0.91["0.91  
4%"]
    L13_0.71 -- no --> L18_0.54["0.54  
6%"]
    L15_0.47 -- yes --> L19_0.31["0.31  
41%"]
    L15_0.47 -- no --> L20_0.4["0.4  
15%"]
    L16_0.45 -- yes --> L21_0.34["0.34  
4%"]
    L16_0.45 -- no --> L22_0.43["0.43  
100%"]
    L17_0.71 -- yes --> L23_0.79["0.79  
4%"]
    L17_0.71 -- no --> L24_0.54["0.54  
6%"]
    L19_0.31 -- yes --> L25_0.31["0.31  
41%"]
    L19_0.31 -- no --> L26_0.4["0.4  
15%"]
    L21_0.34 -- yes --> L27_0.34["0.34  
4%"]
    L21_0.34 -- no --> L28_0.43["0.43  
100%"]
    L23_0.79 -- yes --> L29_0.79["0.79  
4%"]
    L23_0.79 -- no --> L30_0.54["0.54  
6%"]
    L25_0.31 -- yes --> L31_0.31["0.31  
41%"]
    L25_0.31 -- no --> L32_0.4["0.4  
15%"]
    L27_0.34 -- yes --> L33_0.34["0.34  
4%"]
    L27_0.34 -- no --> L34_0.43["0.43  
100%"]
    L29_0.79 -- yes --> L35_0.79["0.79  
4%"]
    L29_0.79 -- no --> L36_0.54["0.54  
6%"]
    L31_0.31 -- yes --> L37_0.31["0.31  
41%"]
    L31_0.31 -- no --> L38_0.4["0.4  
15%"]
    L33_0.34 -- yes --> L39_0.34["0.34  
4%"]
    L33_0.34 -- no --> L40_0.43["0.43  
100%"]
    L35_0.79 -- yes --> L41_0.79["0.79  
4%"]
    L35_0.79 -- no --> L42_0.54["0.54  
6%"]
    L37_0.31 -- yes --> L43_0.31["0.31  
41%"]
    L37_0.31 -- no --> L44_0.4["0.4  
15%"]
    L39_0.34 -- yes --> L45_0.34["0.34  
4%"]
    L39_0.34 -- no --> L46_0.43["0.43  
100%"]
    L41_0.79 -- yes --> L47_0.79["0.79  
4%"]
    L41_0.79 -- no --> L48_0.54["0.54  
6%"]
    L43_0.31 -- yes --> L49_0.31["0.31  
41%"]
    L43_0.31 -- no --> L50_0.4["0.4  
15%"]
    L45_0.34 -- yes --> L51_0.34["0.34  
4%"]
    L45_0.34 -- no --> L52_0.43["0.43  
100%"]
    L47_0.79 -- yes --> L53_0.79["0.79  
4%"]
    L47_0.79 -- no --> L54_0.54["0.54  
6%"]
    L49_0.31 -- yes --> L55_0.31["0.31  
41%"]
    L49_0.31 -- no --> L56_0.4["0.4  
15%"]
    L51_0.34 -- yes --> L57_0.34["0.34  
4%"]
    L51_0.34 -- no --> L58_0.43["0.43  
100%"]
    L53_0.79 -- yes --> L59_0.79["0.79  
4%"]
    L53_0.79 -- no --> L60_0.54["0.54  
6%"]
    L55_0.31 -- yes --> L61_0.31["0.31  
41%"]
    L55_0.31 -- no --> L62_0.4["0.4  
15%"]
    L57_0.34 -- yes --> L63_0.34["0.34  
4%"]
    L57_0.34 -- no --> L64_0.43["0.43  
100%"]
    L59_0.79 -- yes --> L65_0.79["0.79  
4%"]
    L59_0.79 -- no --> L66_0.54["0.54  
6%"]
    L61_0.31 -- yes --> L67_0.31["0.31  
41%"]
    L61_0.31 -- no --> L68_0.4["0.4  
15%"]
    L63_0.34 -- yes --> L69_0.34["0.34  
4%"]
    L63_0.34 -- no --> L70_0.43["0.43  
100%"]
    L65_0.79 -- yes --> L71_0.79["0.79  
4%"]
    L65_0.79 -- no --> L72_0.54["0.54  
6%"]
    L67_0.31 -- yes --> L73_0.31["0.31  
41%"]
    L67_0.31 -- no --> L74_0.4["0.4  
15%"]
    L69_0.34 -- yes --> L75_0.34["0.34  
4%"]
    L69_0.34 -- no --> L76_0.43["0.43  
100%"]
    L71_0.79 -- yes --> L77_0.79["0.79  
4%"]
    L71_0.79 -- no --> L78_0.54["0.54  
6%"]
    L73_0.31 -- yes --> L79_0.31["0.31  
41%"]
    L73_0.31 -- no --> L80_0.4["0.4  
15%"]
    L75_0.34 -- yes --> L81_0.34["0.34  
4%"]
    L75_0.34 -- no --> L82_0.43["0.43  
100%"]
    L77_0.79 -- yes --> L83_0.79["0.79  
4%"]
    L77_0.79 -- no --> L84_0.54["0.54  
6%"]
    L79_0.31 -- yes --> L85_0.31["0.31  
41%"]
    L79_0.31 -- no --> L86_0.4["0.4  
15%"]
    L81_0.34 -- yes --> L87_0.34["0.34  
4%"]
    L81_0.34 -- no --> L88_0.43["0.43  
100%"]
    L83_0.79 -- yes --> L89_0.79["0.79  
4%"]
    L83_0.79 -- no --> L90_0.54["0.54  
6%"]
    L85_0.31 -- yes --> L91_0.31["0.31  
41%"]
    L85_0.31 -- no --> L92_0.4["0.4  
15%"]
    L87_0.34 -- yes --> L93_0.34["0.34  
4%"]
    L87_0.34 -- no --> L94_0.43["0.43  
100%"]
    L89_0.79 -- yes --> L95_0.79["0.79  
4%"]
    L89_0.79 -- no --> L96_0.54["0.54  
6%"]
    L91_0.31 -- yes --> L97_0.31["0.31  
41%"]
    L91_0.31 -- no --> L98_0.4["0.4  
15%"]
    L93_0.34 -- yes --> L99_0.34["0.34  
4%"]
    L93_0.34 -- no --> L100_0.43["0.43  
100%"]
    L95_0.79 -- yes --> L101_0.79["0.
```