麻竹出笋和高生长规律的研究*

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(popup:311400)

1995 5 10, 1996 3 30
1 865.35, 135.89 kg, 1.26 kg, 1.26 cm
81.12%, 20.44 cm, Logistic, Richards

1 自然概况

1 1998-12-09

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2 研究方法

2.1 目标与方法

20195年5月10日，以20 m × 20 m的方格为单位，对研究区域的9个部分进行测定。

2.2 实验方法

3 结果与分析

3.1 结果

$$X = \begin{pmatrix} X_1 \\ X_2 \\ \vdots \\ X_{18} \end{pmatrix} = \begin{pmatrix} x_{11} & x_{12} \\ x_{21} & x_{22} \\ \vdots & \vdots \\ x_{181} & x_{182} \end{pmatrix}$$

成虫监测（图1）

3.2 分析

21.36%和28.48%，23.01%，0.95 kg和1.47 kg。
3. 3

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11. 46%, 55 d 20. 44 cm, 81. 12%, 39. 0 cm, 20. 44 cm, 7. 42%
3. 4

\[ Y = A \left( 1 - e^{-kt} \right)^b \]  Logistic

\[ Y = K / (1 + me^{-n}) \]  Richards

Richards: \[ H = 102.540 (1 - e^{-0.048 t})^{4.938} \]
Logistic: \[ H = 102.540 / (1 + 27.866 e^{-0.075 t}) \]

\[ r = 0.997 \]
\[ R = 0.999 \]

\[ t = \ln \frac{m}{r}; \]

\[ T = [\ln m \pm \ln(2 + \frac{3}{t})] / r \]

Logistic, \[ m = 27.866, r = 0.075, \]

44, \[ \text{处实测值} \]
27, \[ 62 \]
35 d

3. 5

\[ t = \ln \frac{m}{r}; \]

\[ T = [\ln m \pm \ln(2 + \frac{3}{t})] / r \]

Logistic, \[ m = 27.866, r = 0.075, \]

44, \[ \text{处实测值} \]
27, \[ 62 \]
35 d

11 d

3. 6

\[ X_1(\degree C) \]
\[ X_2(\text{mm}) \]
\[ X_3(\degree C) \]
\[ X_4(\degree C) \]
\[ X_5(\text{mm}) \]
\[ X_6(\text{mm}) \]
\[ X_7(\text{mm}) \]
\[ X_8(\text{h}) \]
\[ X_9(\%) \]
\[ Y(\text{cm}) \]

\[ r_{18} = 0.389, r_{11} = 0.340, r_{12} = 0.214, r_{15} = -0.180, r_{0.05} = 0.269, r_{0.01} = 0.348 \]
4. 结论

(1) 该实验表明，不同处理对玉米生长的影响不同，处理1和处理2的生长效果较好。

(2) 通过分析数据发现，处理2的平均生长速度比处理1快，且生长曲线更平滑。

(3) Logistic模型可以较好地拟合实验数据，模型为：\( H = 102.540/ (1 + 27.866 e^{-0.075t}) \)，\( R = 0.999 \)。

(4) Richards模型也可以用于拟合实验数据，模型为：\( H = 102.540 (1 - e^{-0.048 t})^{0.938} \)，\( R = 0.997 \)。
Rule of Shooting and Height-growth of *Dendrocalamus latiflorus*

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**Abstract:** The rule of shooting and height-growth of *Dendrocalamus latiflorus* was studied in Huaan, Fujian Province during the period from May through October, 1995. The results are showed as follows: (1) The process of shooting and height-growth of *D. latiflorus* can be quantitatively divided into three stages, i.e. initial, abundant and ending stage. The number of shoots at the abundant stage of shooting accounts for 57.48% of the total, and a single shot at this stage weighs 1.26 kg averagely. The height-growth increment at the abundant stage of height-growth accounts for 81.12% of the total, and the height-growth increment at this stage during one day is 20.44 cm averagely. (2) The process of height-growth of *D. latiflorus* can be simulated effectively with the models of Logistic and Richards, and the correlation coefficient is high. (3) The leading meteorological factors affecting the height-growth of *D. latiflorus* are sunshine time, the previous day’s mean temperate and precipitation, and the lowest temperate of current day. Among them, the last one is negatively correlated with the height-growth, the rest of them are positively correlated with it. (4) There are 2 growth peaks within 24 hours in the height-growth of *D. latiflorus*, i.e. during 6:00-8:00 and 18:00-22:00. The low point is during 14:00-16:00. It grows evenly at night.

**Key words:** *Dendrocalamus latiflorus*; shooting; rule of height-growth