Seed Development Flow-Chart in Grape Berries

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Based on:
H.M. Pearson, 1932;
A.B. Sout, 1936;
B.H. Barrit, 1970
Parthenocarpy: Seedless grapes

Seed Development Flow-Chart in Grape Berries

Days From Bloom

Ovule development:
- Normal ovules

Anthesis and Fertilization:
- Normal zygote

Seed Coat development:
- Normal Seed-coat

Endosperm development:
- Normal endosperm

Embryo development:
- The rule: Normal Seeded grapes empty Seeded

A. Abnormal in structure – only vegetative tissue
B. Abortion during formation of the egg apparatus

C. Defective or no pro-embryo development

D. Abnormalities in Seed coat formation

E. Abnormalities in endosperm development

Stenospermocarpy:
- Large traces
- Medium traces
- Small traces

Parthenocarpy: Seedless grapes
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The rule:
Normal Seeded grapes
empty Seeded

Stenospermocarpy:
Large traces
Medium traces
Small traces

Seed type as described by Stout 1936:
- Seeds which crush
  - Brittle seeds
  - Papery seeds
  - Gritty seeds
- Soft & slightly gritty seeds
- Extreme partial seeds
- No seeds

Parthenocarpy:
Seedless grapes