

Adaptations

Growth

Adaptations Growth

Enzymes

High metabolic

High photosynthetic

Perform at low temp

(Chapin and Shaver 1985)

Preform Buds

Overwinter & Early Start

(Billings 1974)



Adaptations Growth

Increased root affinity for P
(Savile 1972)

Mycorrhiza fix N
(Kohn and Statovski 1990)



Adaptations Growth

Evergreen

- Photosynthesize under snow
 - "Longer season"
 - Slower growth
- (Savile 1972, Starr and Oberbauer 1993)

Wintergreen

- Leaves re-green
 - Early start
- (Savile 1972)



Adaptations

Reproduction

Adaptations Reproduction

Stolons & Runners

- Asexual
 - High success rate
 - Colony formation
- (Billings 1974, Savile 1972)

Selfing

- Asexual
 - High success rate
- (Savile 1972)



Adaptations Reproduction

Bulbils

- Asexual
 - High success rate
 - Spread farther
- (Billings 1974, Savile 1972)

Pseudo-vivipary

- Asexual
 - High success rate
 - Spread farther
- (Elmqvist 1996)



Adaptations Reproduction

Flowers

- Attract flies & bees
(Savile 1972)



Wind Pollination

- Many don't depend on
pollinators
(Savile 1972)



Adaptations Reproduction

Heliotropism

- Attract insect pollinators
 - Speed Development
- (Kevan 1975, Savile 1972)



Adaptations

Temperature Regulation

Pubescence

Alpine Origins (Savile 1972)

Trap warm air & accelerate development

(Savile 1972, Tsukaya 2001)





Vegetation Layer
(Mosses, Grasses, and
Other Plants)

Active Layer
(Thawed soil)

Adaptations

Temperature Regulation

Dense Foliage

Form Rosettes & Colonies

Trap warm air & protect
meristems

(Savile 1972)



Adaptations

Temperature Regulation

Dead Tissues

Trap warm air & protect meristem

(Billings 1974, Savile 1972)

