

Exercise walk-through

5.2

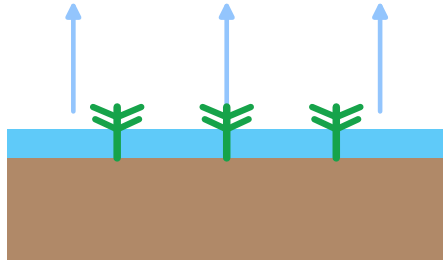
Clearcutting

AP Environmental Science

Irrigation methods, and what each costs

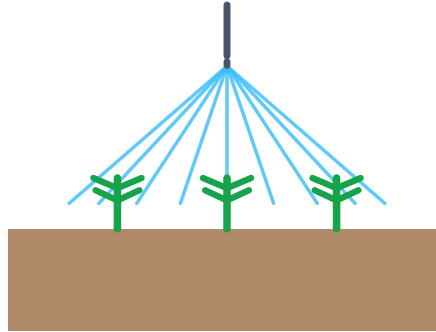
Flood / furrow

much evaporates
& runs off



water efficiency
~50%

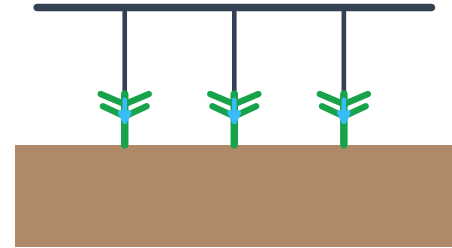
Spray / sprinkler



water efficiency
~70%

Drip

water to the roots



water efficiency
~90%

AP Environmental Science · U5 · three irrigation methods, from low to high water efficiency

Flood irrigation is cheap and wasteful; drip delivers water to the root and wastes least. The trade-off is always **cost against water lost**.

Harvesting resources

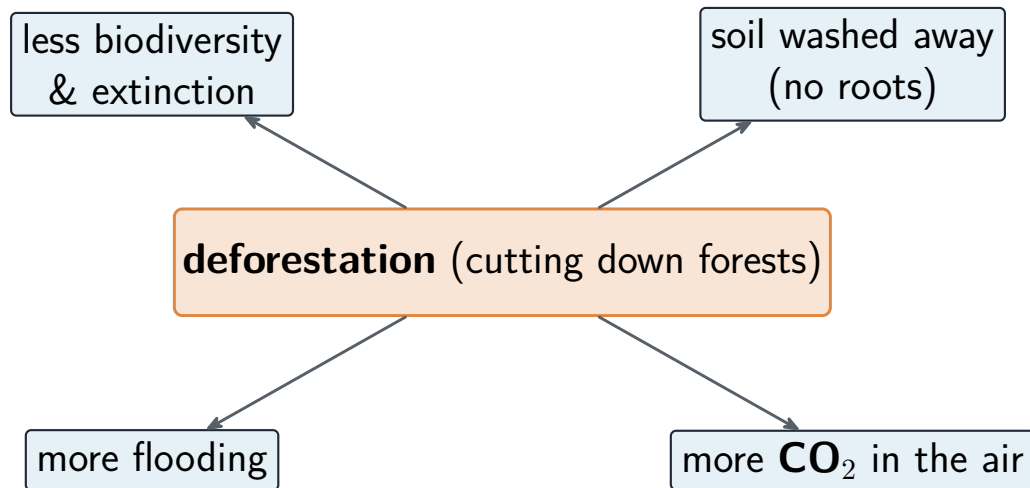
Take renewables no faster than they regrow – the **sustainable yield**

- **clearcutting** erodes; selective cutting sustains
- mining: acid drainage + tailings; reclaim afterward



Clearcutting: short yield, long erosion

Sustainable forestry



Selective cutting instead of clearcutting, replanting, buffer strips along streams, long rotations. Forests store CO₂, so cutting and burning them releases it. Mitigate with **reforestation**, sustainably sourced wood, and reuse.

A **prescribed burn** is a separate tool: burn under control to clear fuel, so a later wildfire cannot grow catastrophic.

Exercises 2.1-2.3

2.1 What is clearcutting?

[1]

2.2 State one environmental impact of clearcutting.

[1]

2.3 How does selective cutting differ from clearcutting?

[1]

Exercises 2.1-2.3

2.1 What is clearcutting? [1]

2.1

- Removing all the trees from an area at once
-

2.2 State one environmental impact of clearcutting. [1]

2.2

- Any one: soil erosion, habitat loss, flooding, loss of carbon storage
-

2.3 How does selective cutting differ from clearcutting? [1]

2.3

- Selective cutting removes only some trees, leaving the forest largely intact

Exercise 3.1

3.1 Clearcutting increases soil erosion mainly because it removes the

[1]

☐

A roots that hold soil

B rocks

C groundwater

D air

Exercise 3.1

3.1 Clearcutting increases soil erosion mainly because it removes the

[1]

☐

A roots that hold soil

B rocks

C groundwater

D air

3.1 A

- the roots that hold soil

Exercise 3.2 (a)

3.2 A hillside forest is clearcut.

(a) Explain why erosion and flooding increase afterward.

[3]

Exercise 3.2 (a)

3.2 A hillside forest is clearcut.

(a) Explain why erosion and flooding increase afterward.

[3]

(a)

- Without trees, roots no longer hold the soil and there is less transpiration and infiltration, so rain washes soil away (erosion) and runs off quickly (flooding)

Exercise 3.2 (b)

3.2 A hillside forest is clearcut.

(b) State one advantage of clearcutting to a timber company.

[1]

Exercise 3.2 (b)

3.2 A hillside forest is clearcut.

(b) State one advantage of clearcutting to a timber company.

[1]

(b)

- It is cheaper/faster and yields more timber at once

Exercise 3.3

3.3 Explain one advantage and one disadvantage of selective cutting compared with clearcutting. [2]

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3.3

- Advantage: less erosion and habitat loss (forest stays intact); disadvantage: it is more expensive and slower