Agriculture and Agri-Food Canada
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Biobed hydrology – observations during initial year of field scale studies in Canada

Tom Wolf, Brian Caldwell, Dean Ngombe
Saskatoon Research Centre, Saskatoon, SK

Murray Belyk
Bayer CropScience, Regina, SK

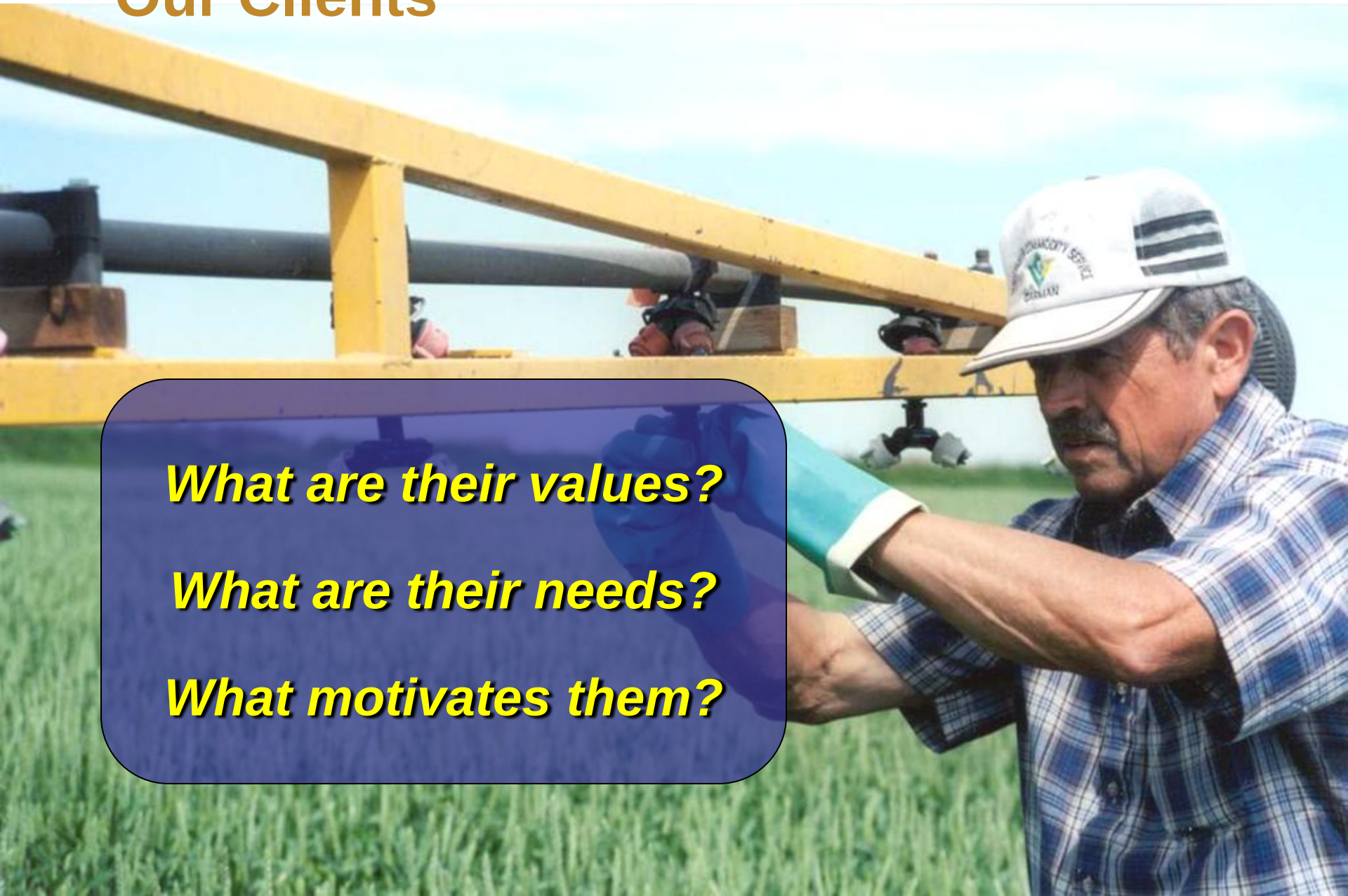
Diane Knight & Rich Farrell
University of Saskatchewan, Saskatoon, SK

Allan Cessna
National Water Research Institute, Saskatoon, SK

Canada

North Pole
Norwegian Sea
Norway
Polar Ice
Greenland Sea
UK
Russia
Arctic Ocean
Ellesmere Island
Alert
Kalaallit Nunaat (Grønland) (Denmark)
Iceland
Bering Strait
North Magnetic Pole
Arctic Circle
Beaufort Sea
Resolute
Baffin Bay
Alaska (USA)
Banks I
Inuvik
Victoria Island
Baffin Island
Davis Strait
Dawson
Great Bear Lake
Gjoa Haven
Yukon Territory
Mackenzie River
Whitehorse
Northwest Territories
Nunavut
Iqaluit
Labrador Sea
Yellowknife
Baker Lake
Atlantic Ocean
Fort Nelson
Great Slave Lake
CANADA
Ungava Bay
Nain
Newfoundland
British Columbia
Kuujjuaq
Fort McMurray
Churchill Falls
Prince George
Hudson Bay
Churchill
St John's
Pacific Ocean
Alberta
Saskatchewan
Manitoba
Sept-Îles
Saint-Pierre et Miquelon (France)
Edmonton
L. Winnipeg
La Grande Rivière
Fraser River
Sandy Lake
James Bay
Vancouver
Calgary
Quebec
Prince Edward Island
Victoria
Kamloops
Saskatoon
Charlottetown
Winnipeg
New Brunswick
Ontario
Québec
Nova Scotia
Regina
Thunder Bay
Halifax
Fredericton
United States of America
Montréal
Lake Superior
Ottawa
Toronto
U of S
Saskatoon
Lake Michigan
L. Huron
Lake Ontario
Lake Erie
LEGEND
National capital
Provincial or Territorial capital
Other populated places
Scale
300 0 300 600 900
km km

Our Clients

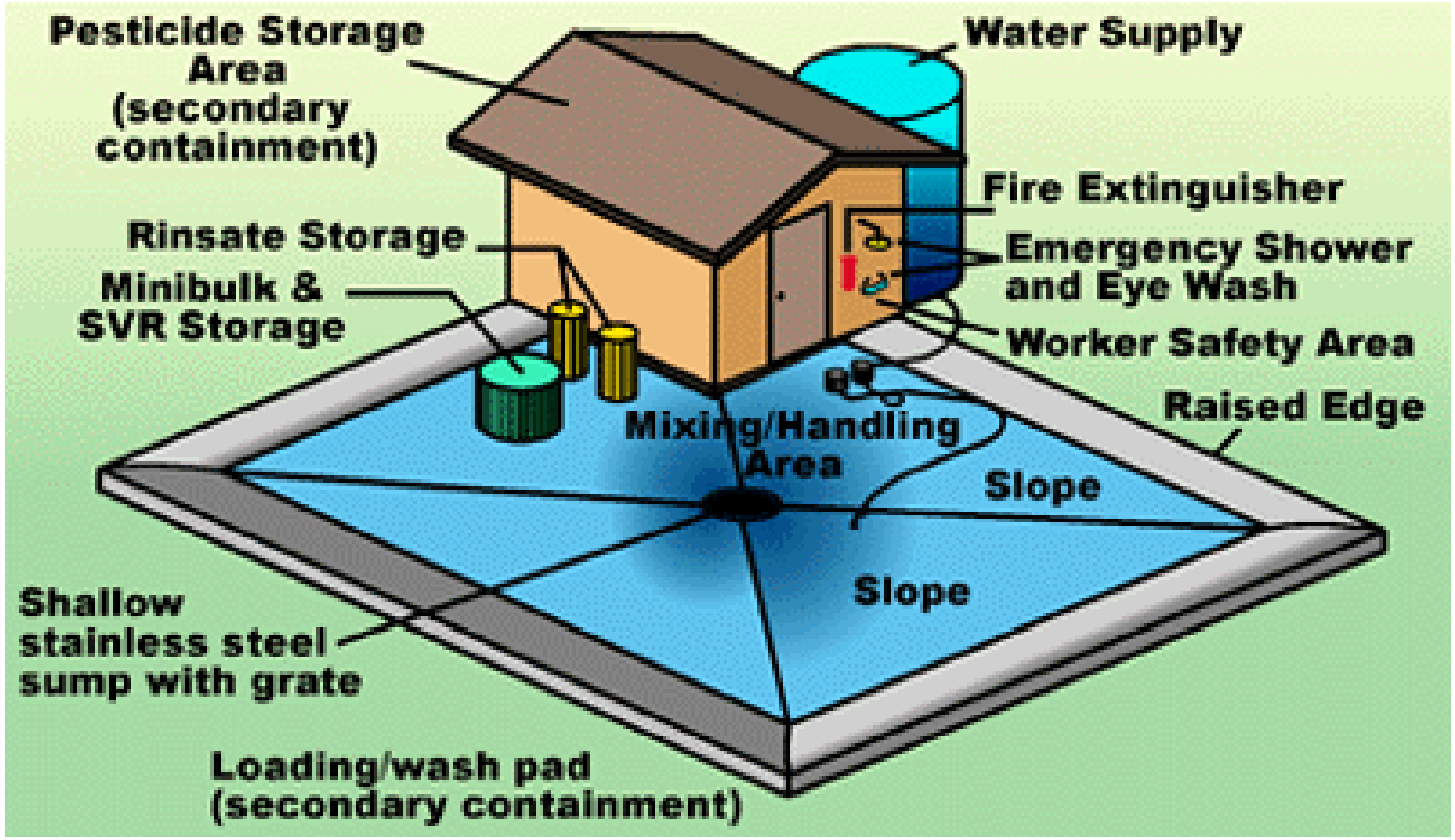


What are their values?

What are their needs?

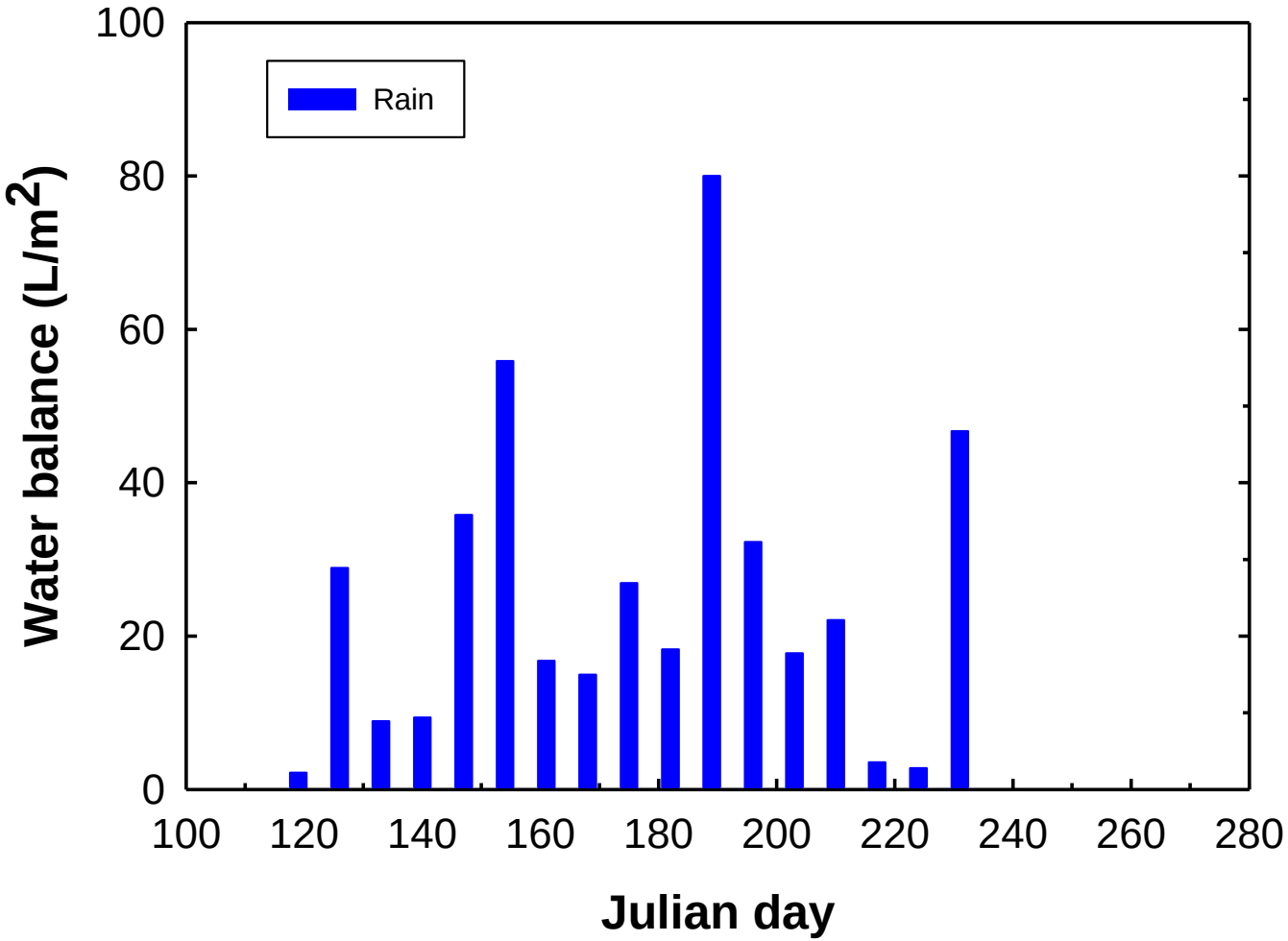
What motivates them?

Learning from the Past

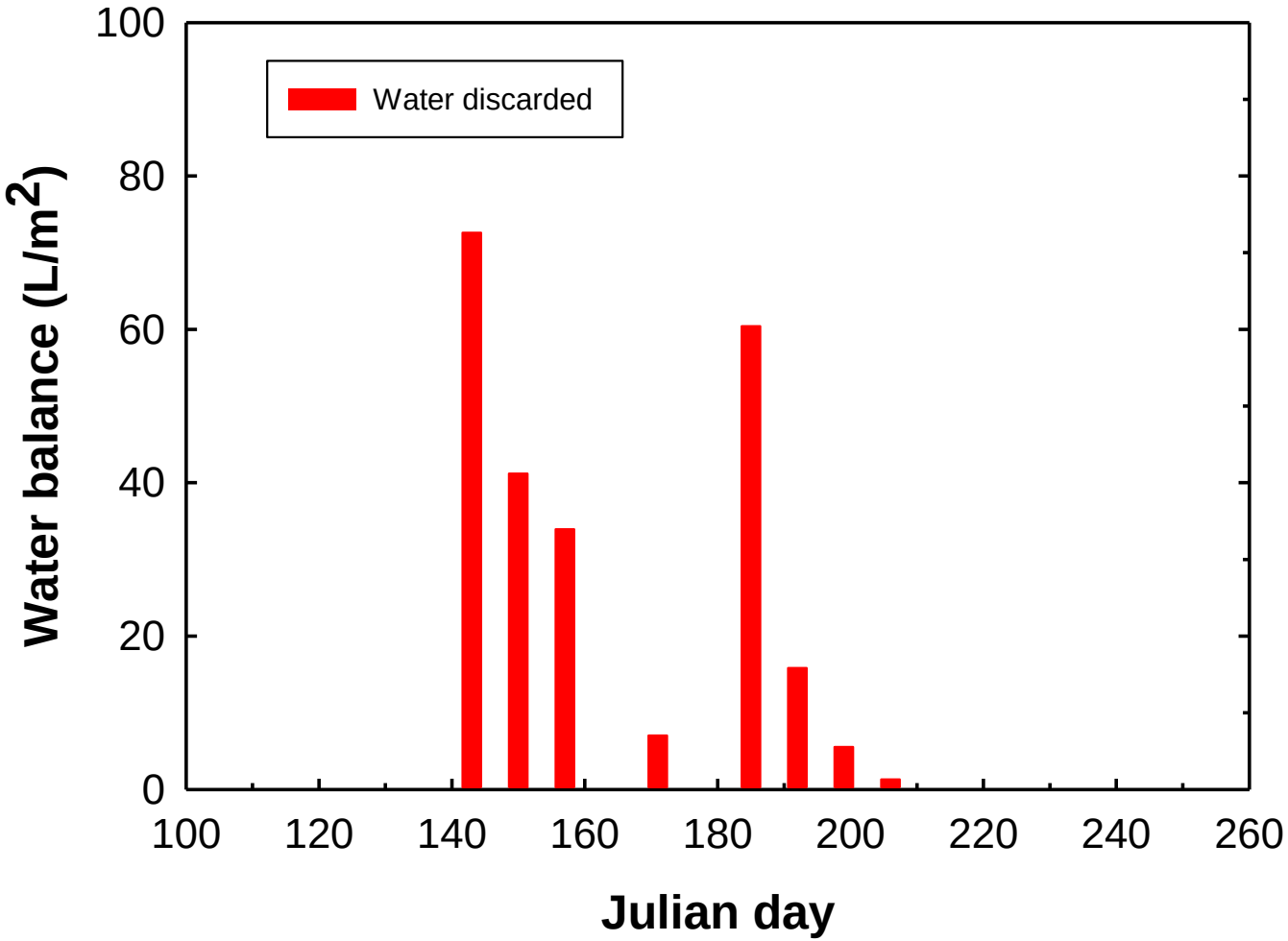


JOHN DEERE
GATOR

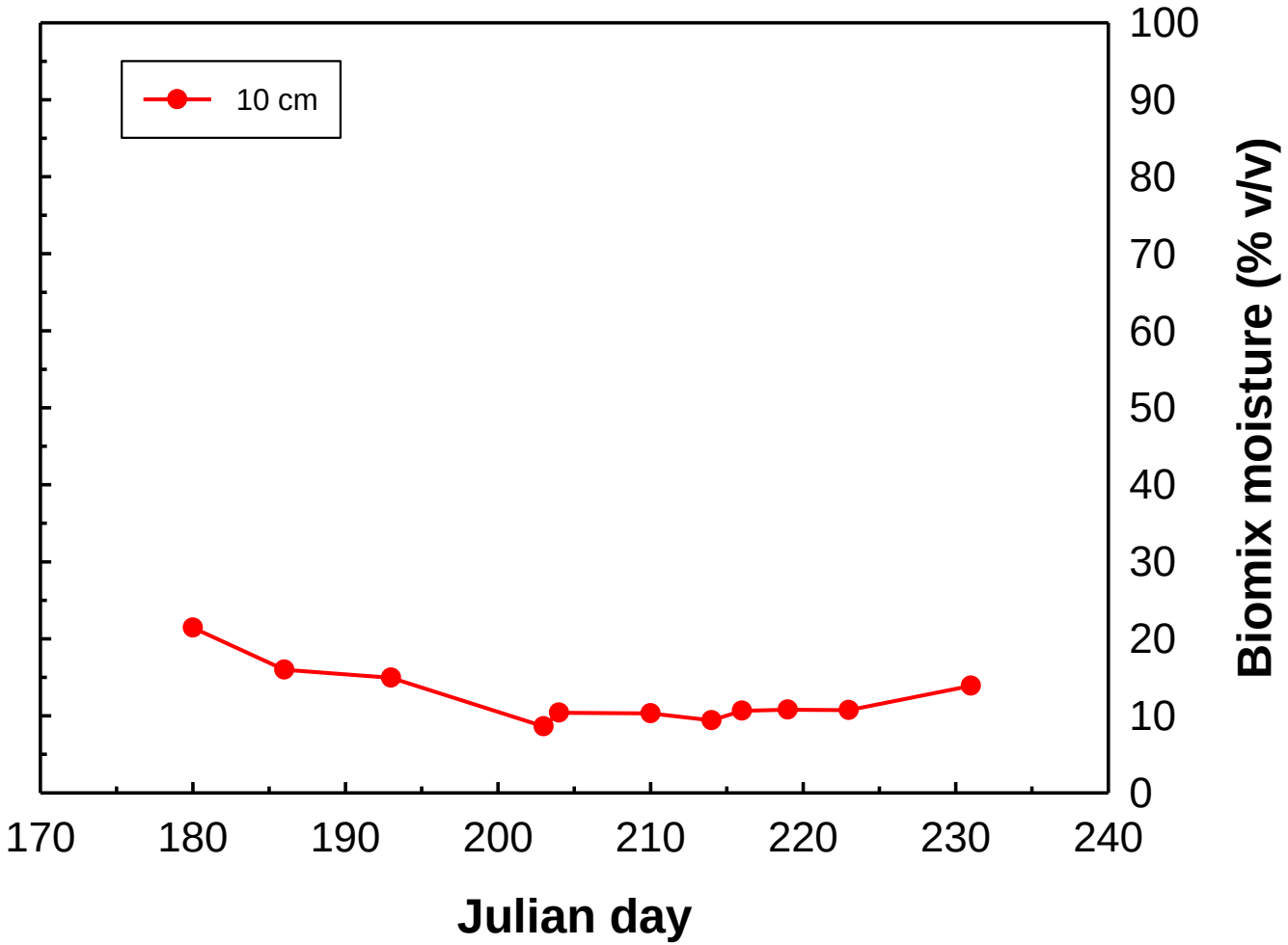
Below Ground – Water inputs



Below Ground – Water removal



Below Ground – Moisture content



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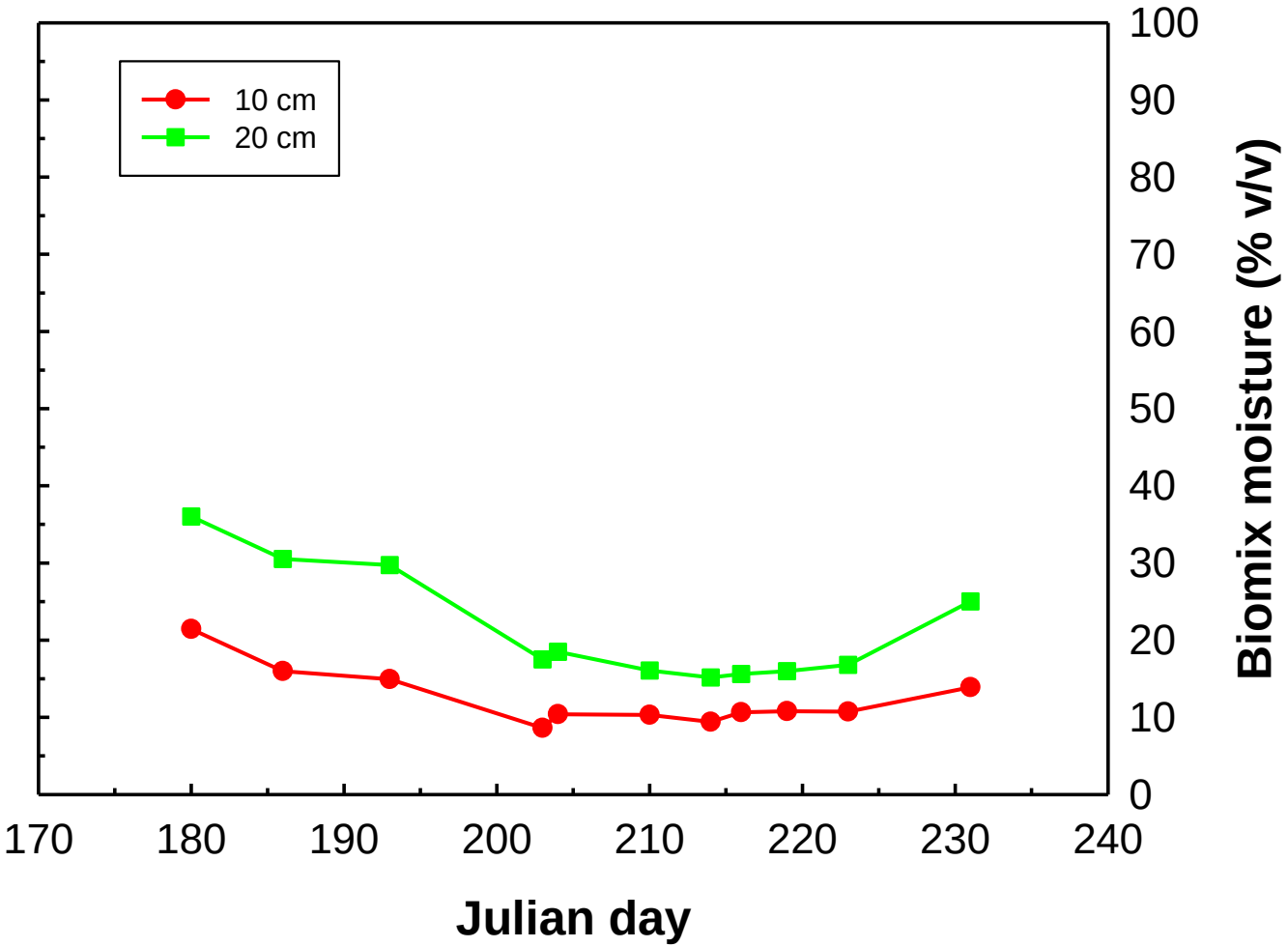

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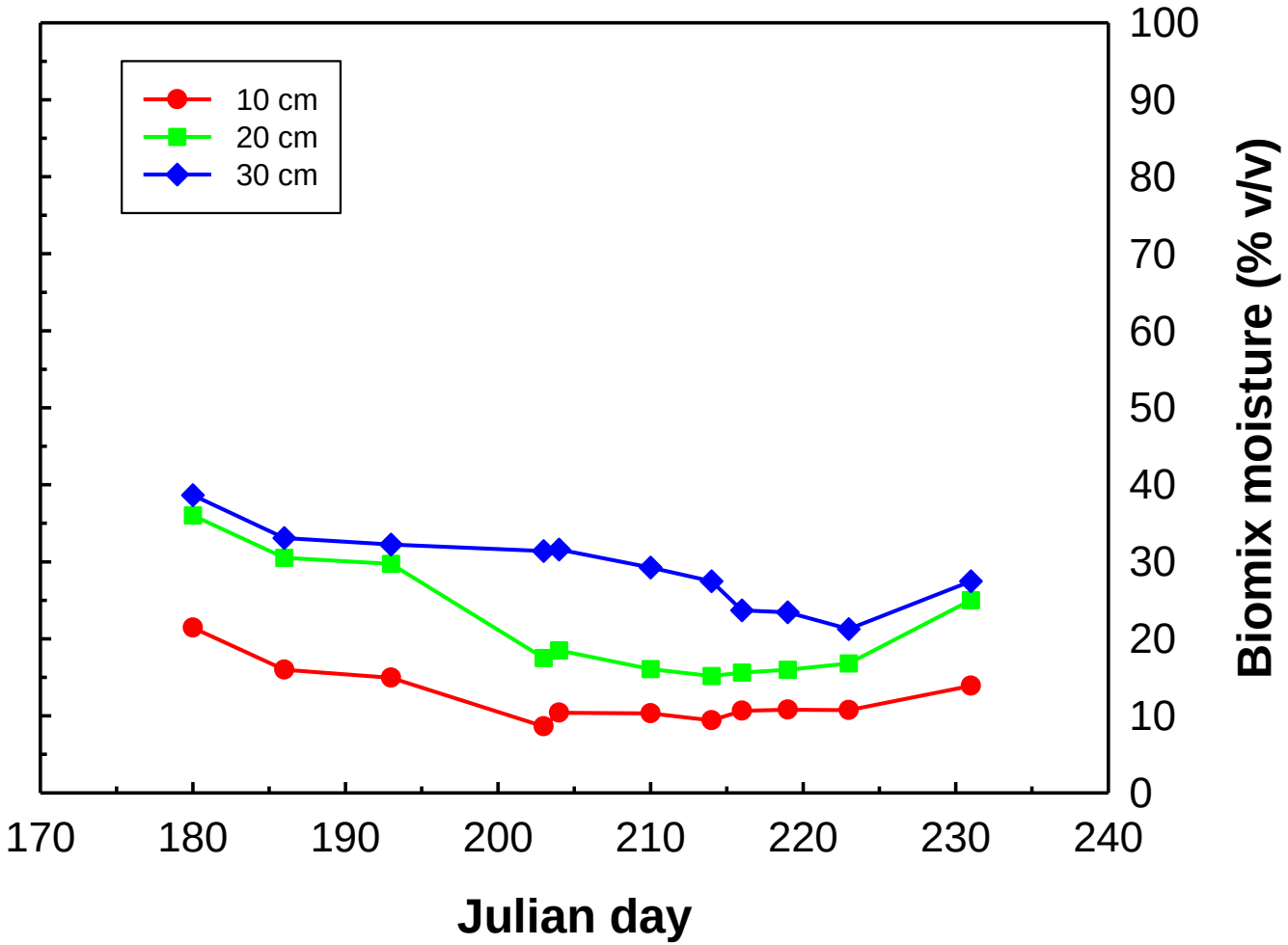

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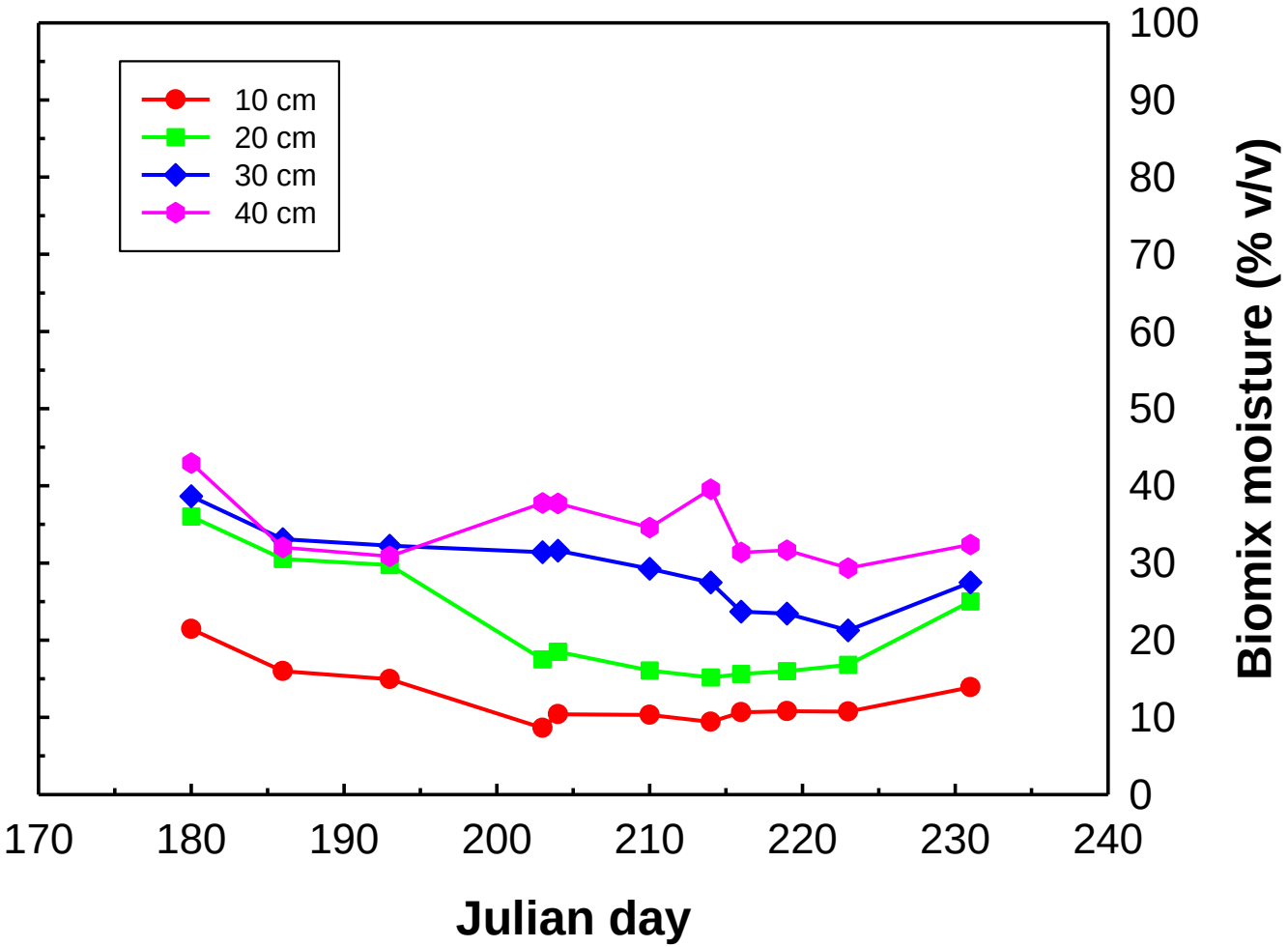

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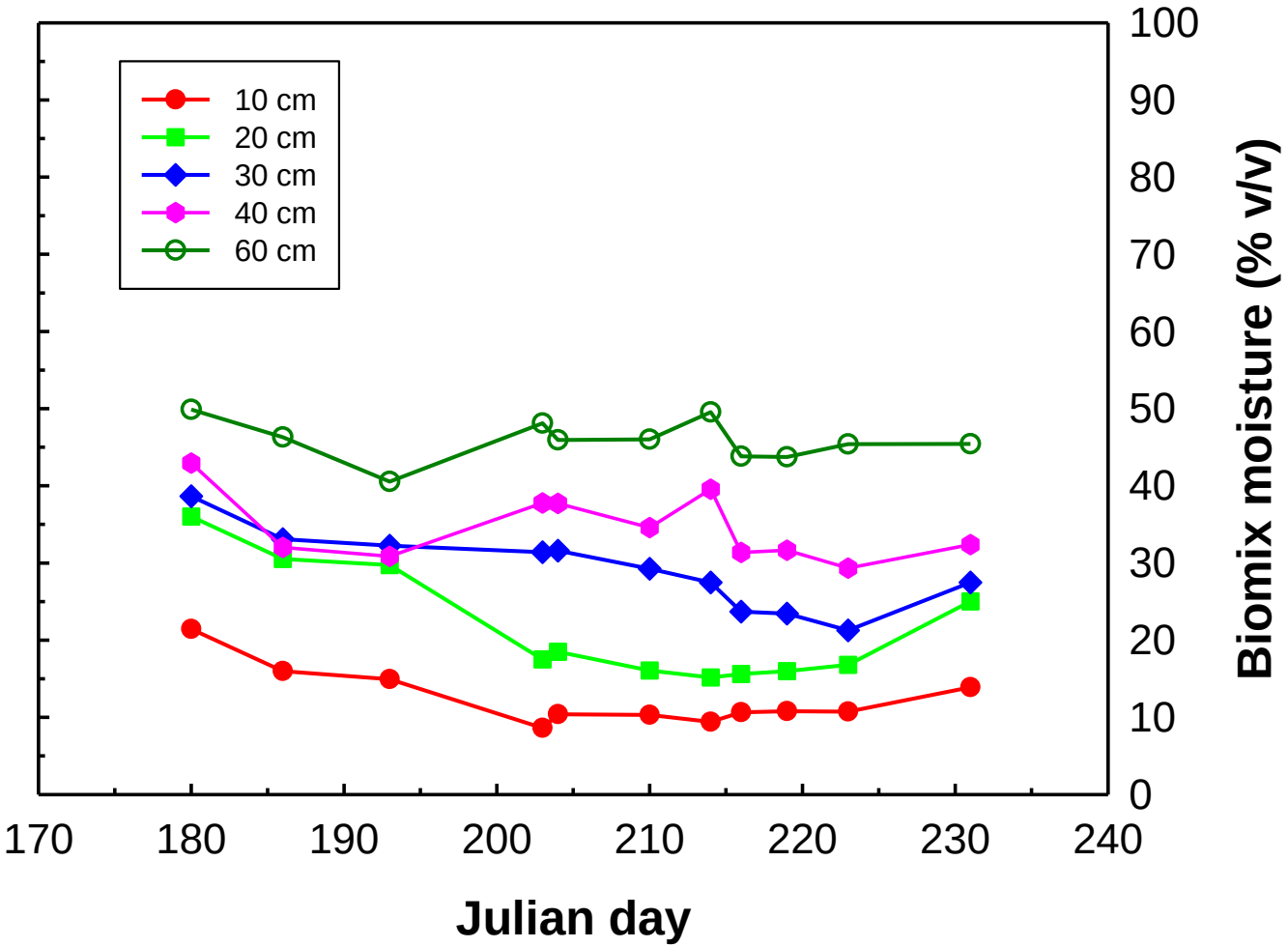
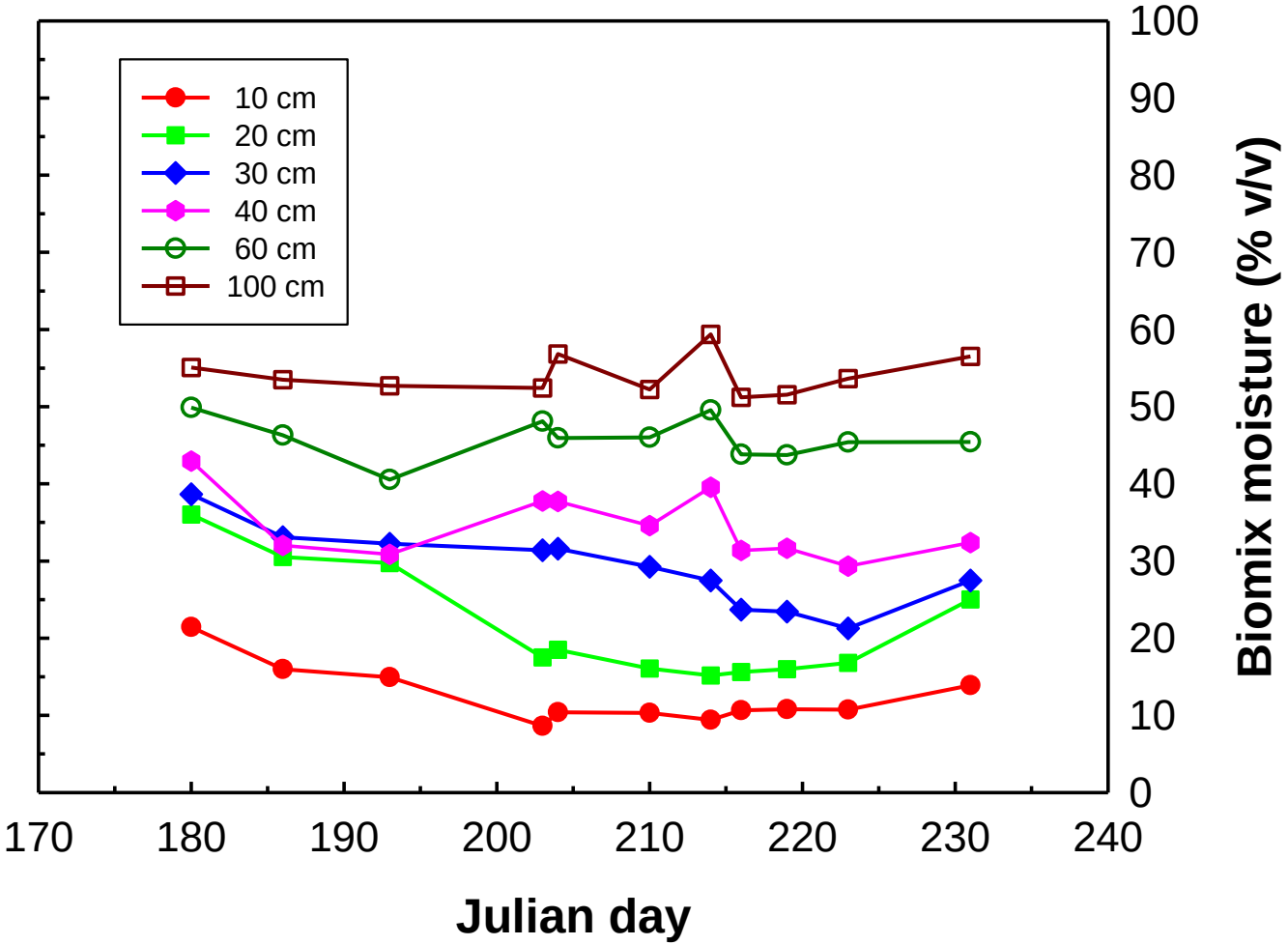
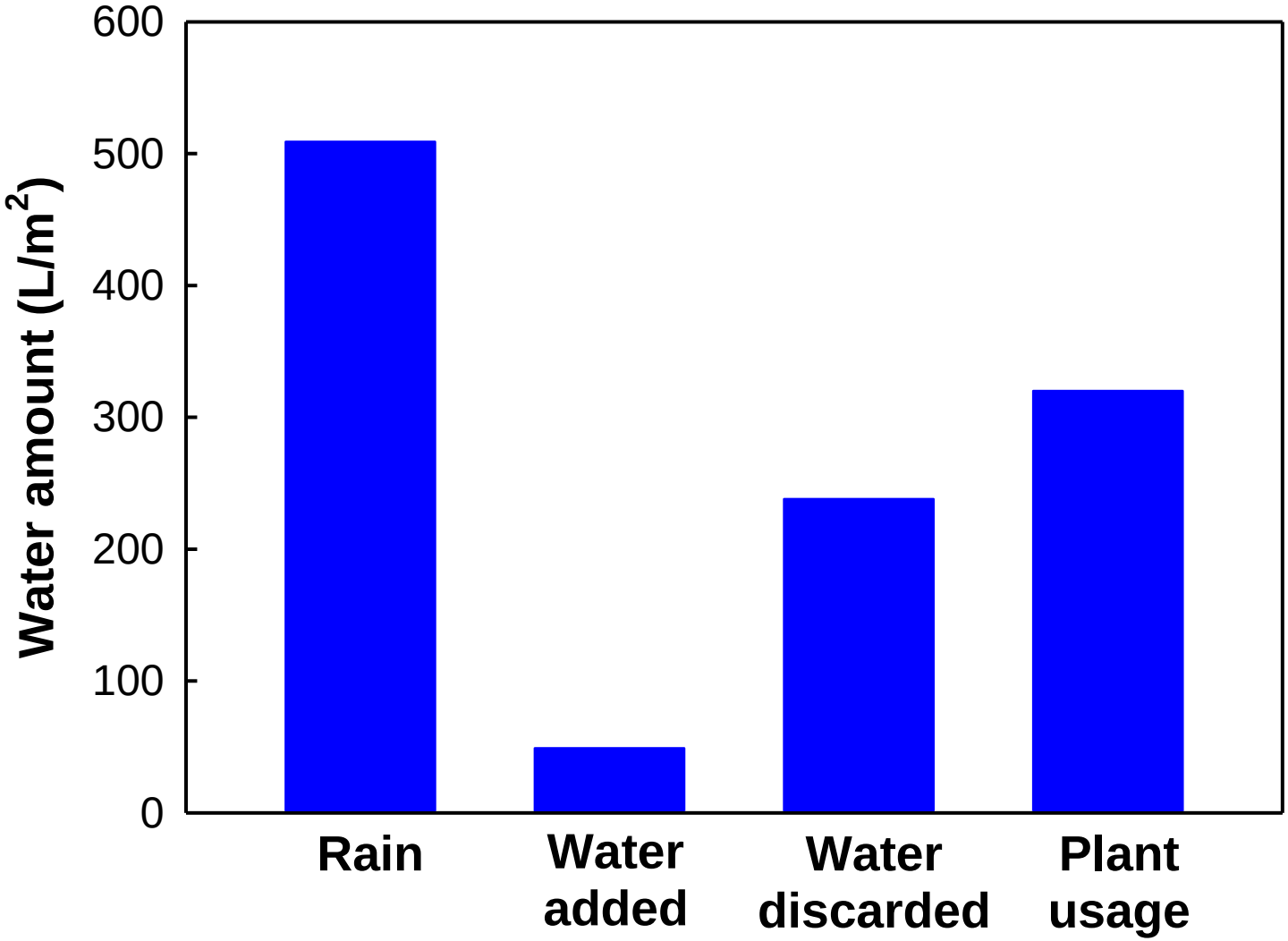


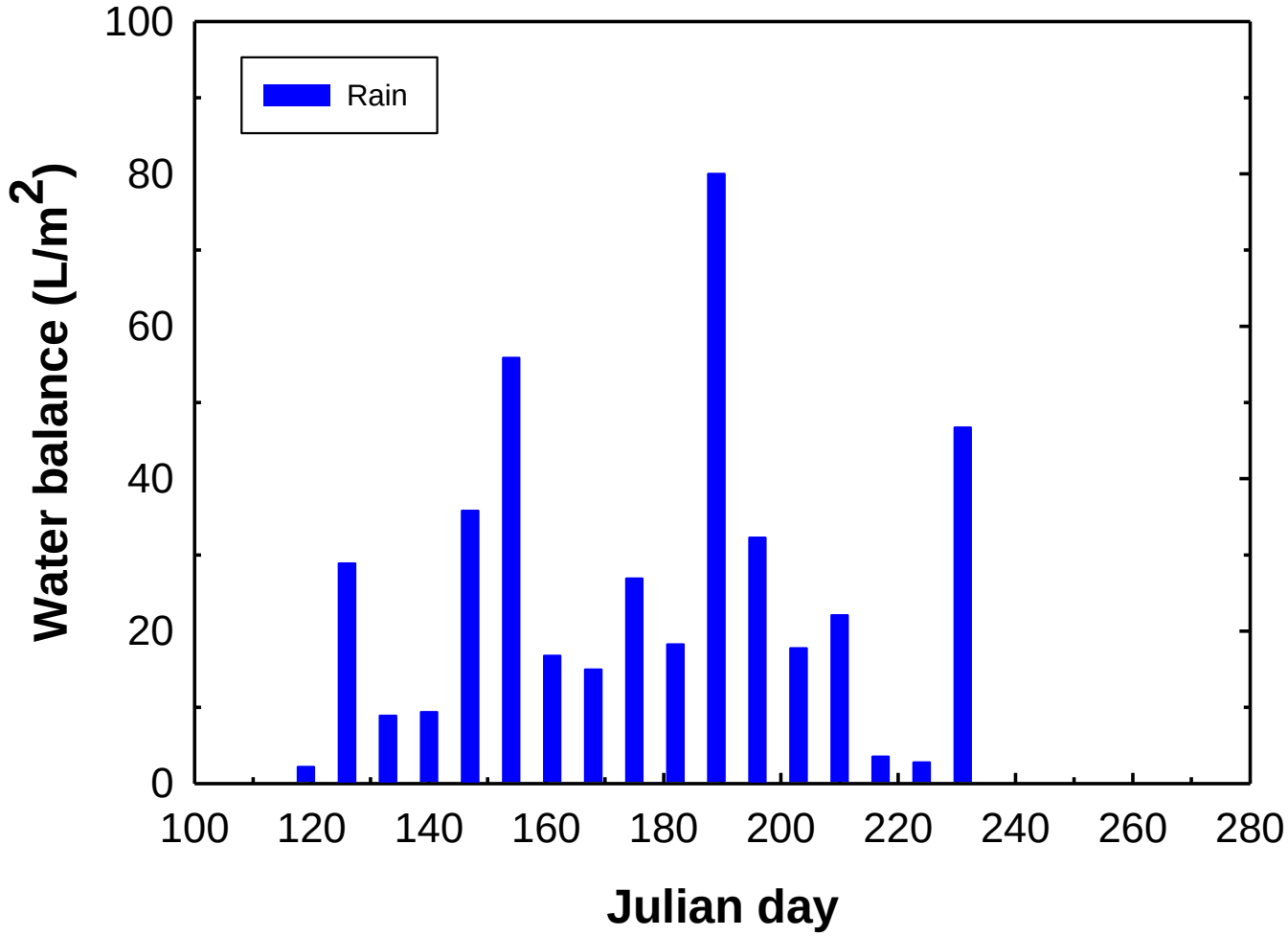
Below Ground – Moisture content



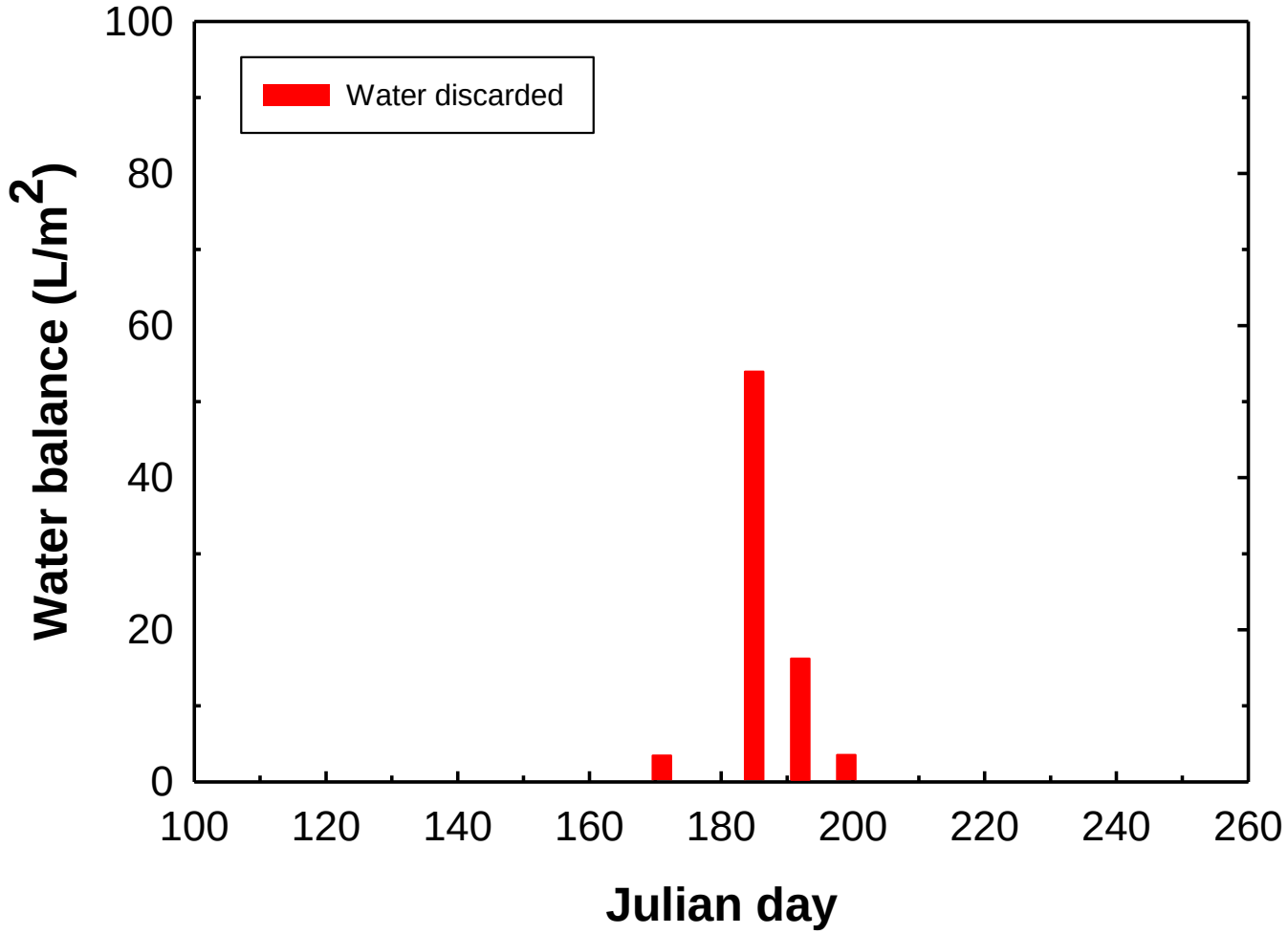
Below Ground



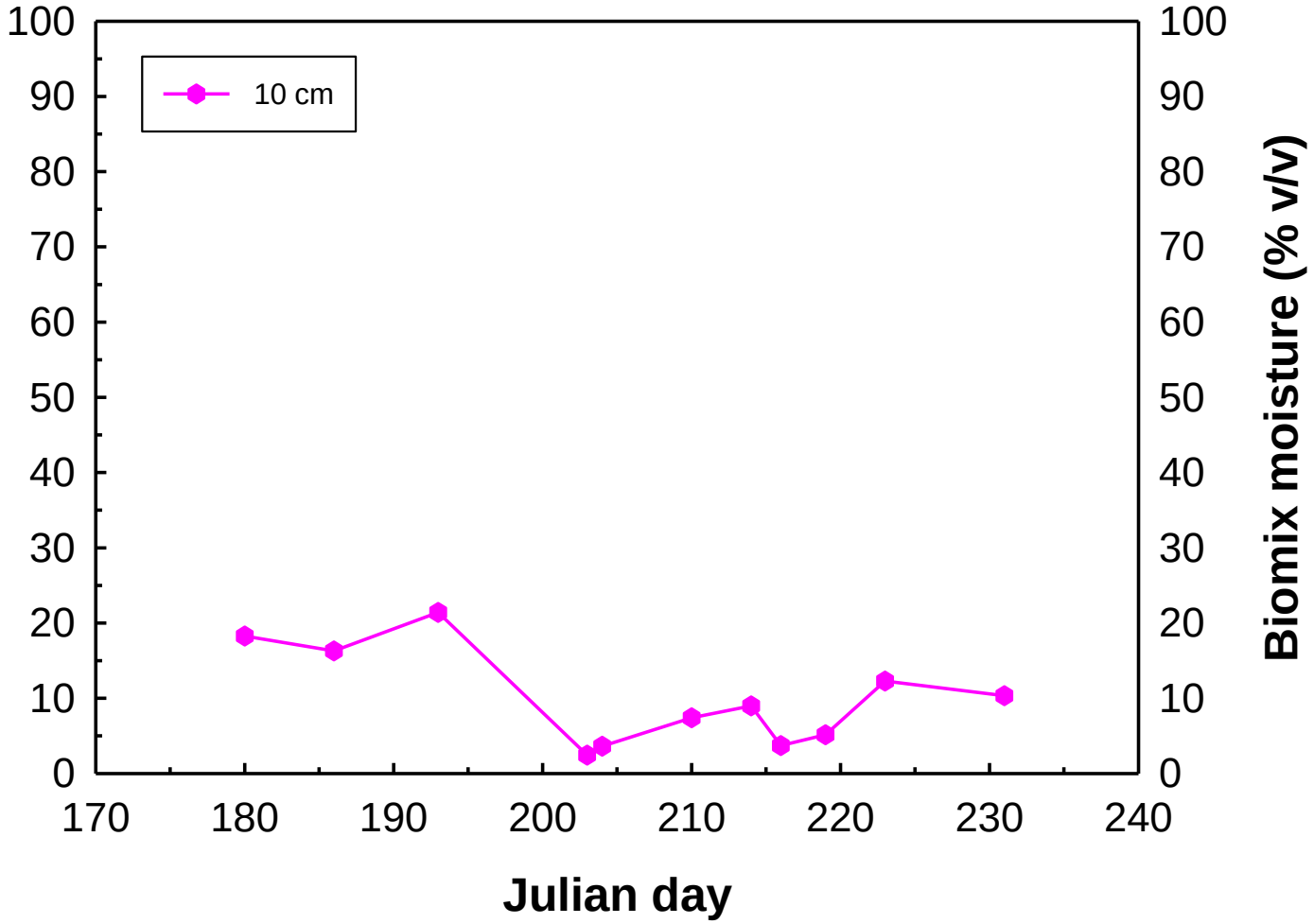
Above Ground – Water inputs



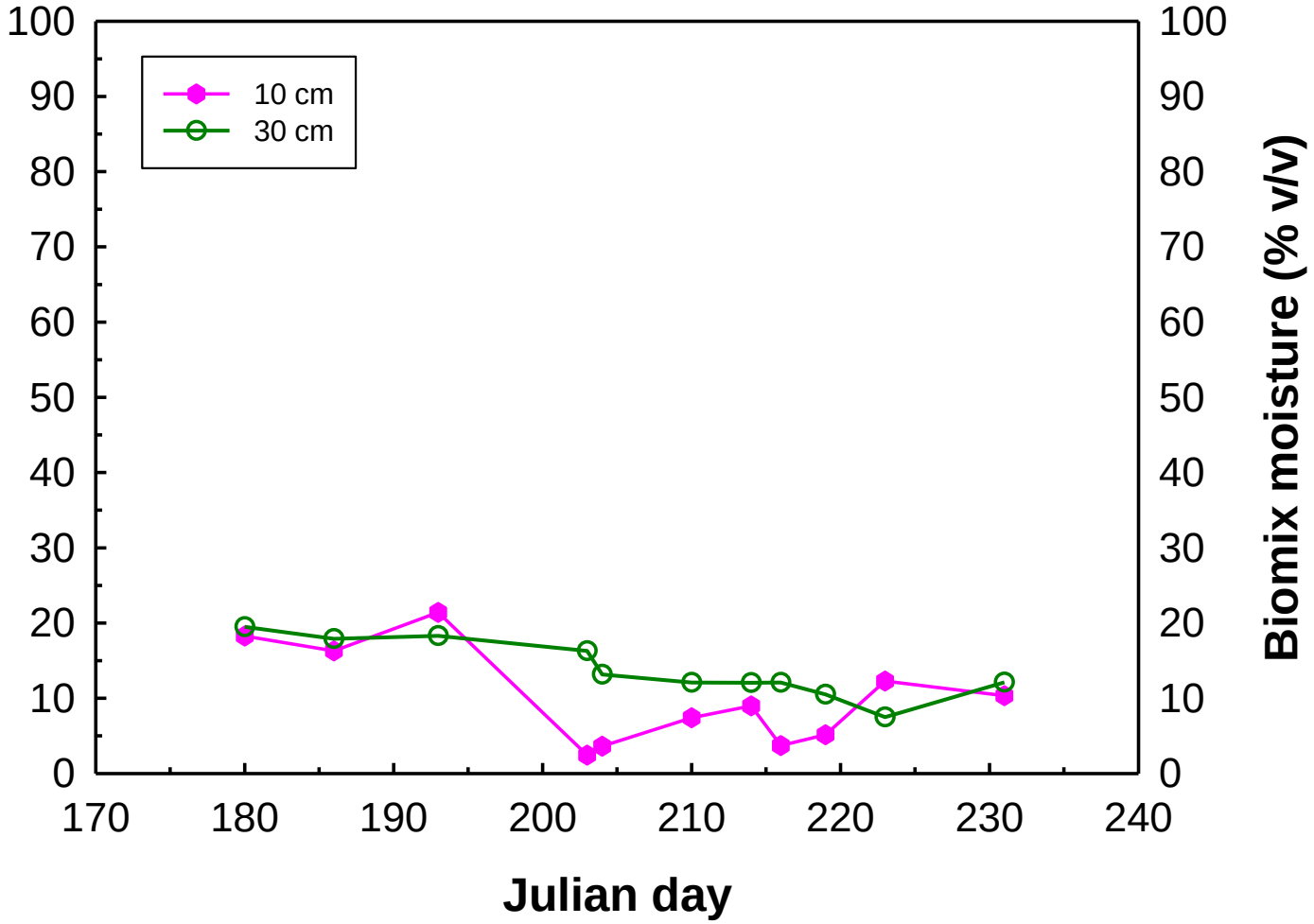
Above Ground – Water removal



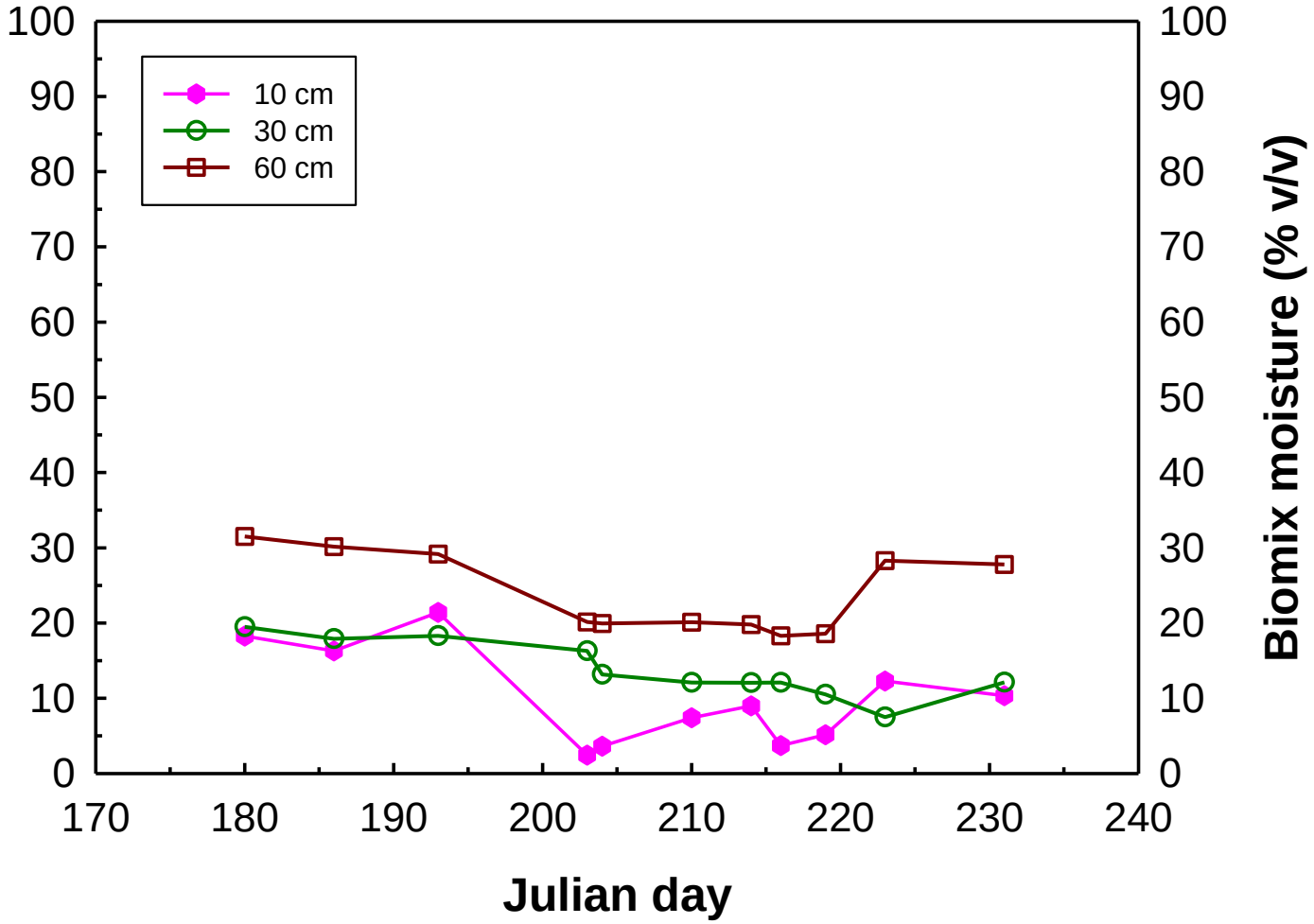
Above Ground – Moisture content



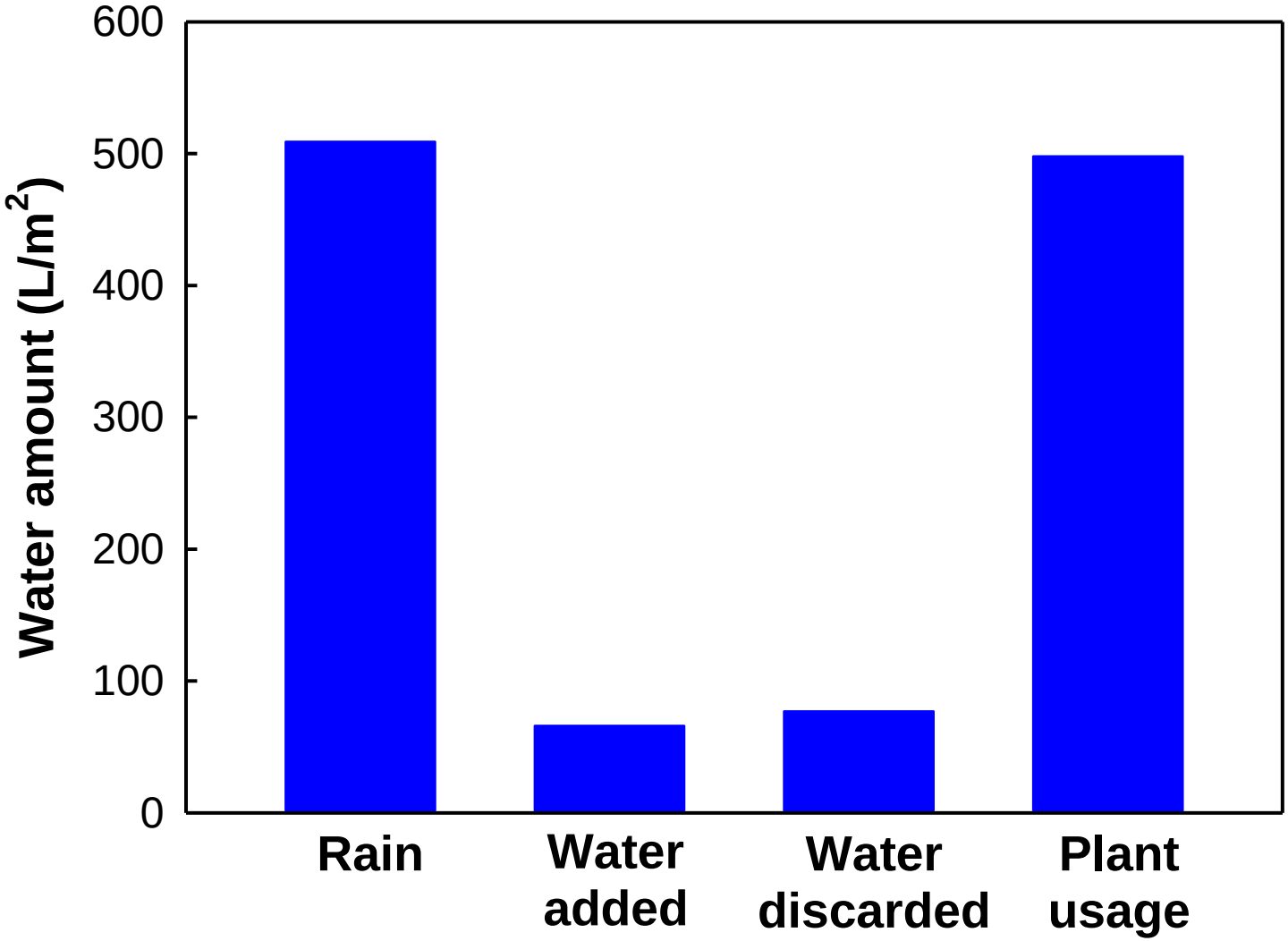
Above Ground – Moisture content



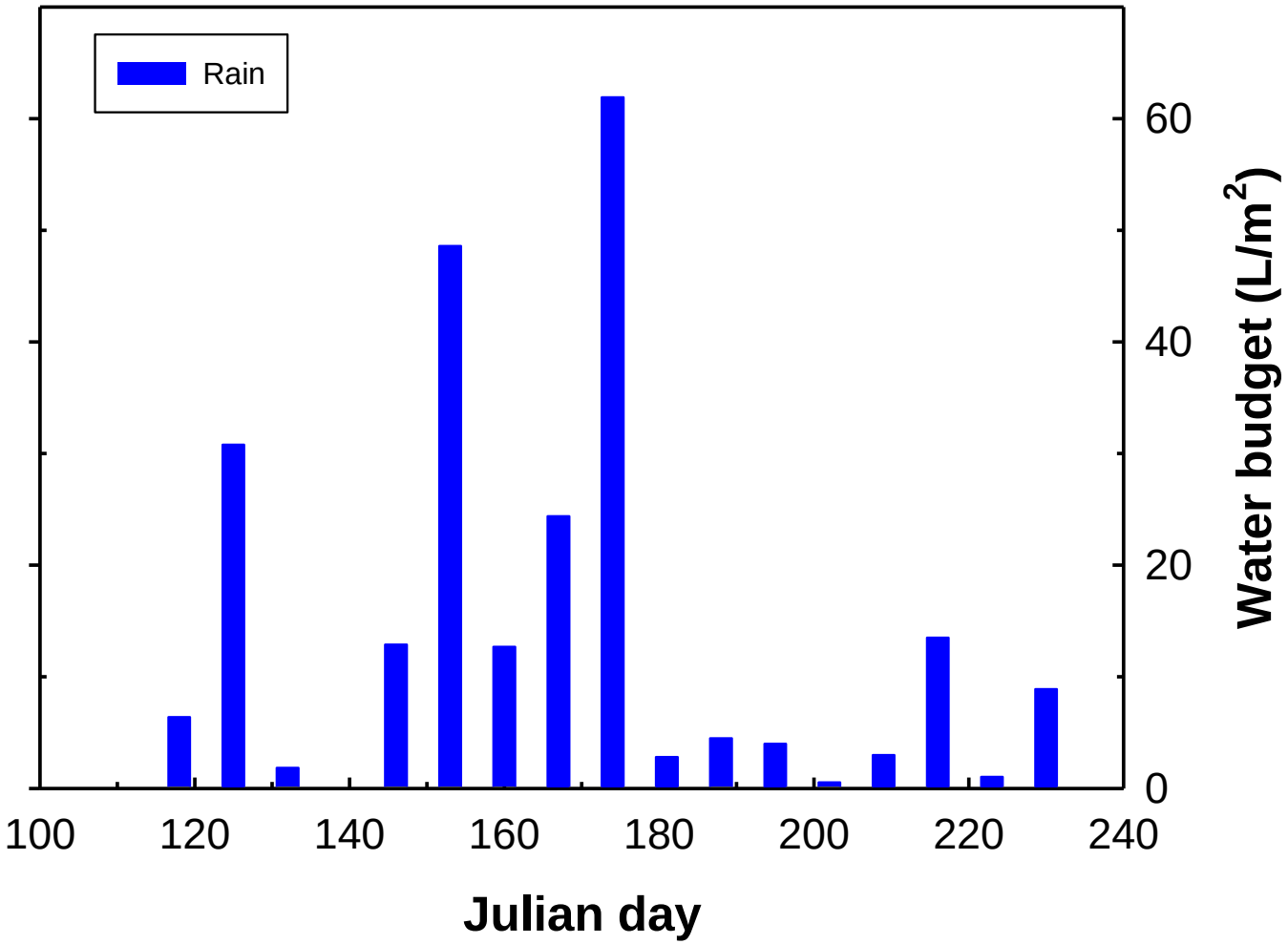
Above Ground – Moisture content



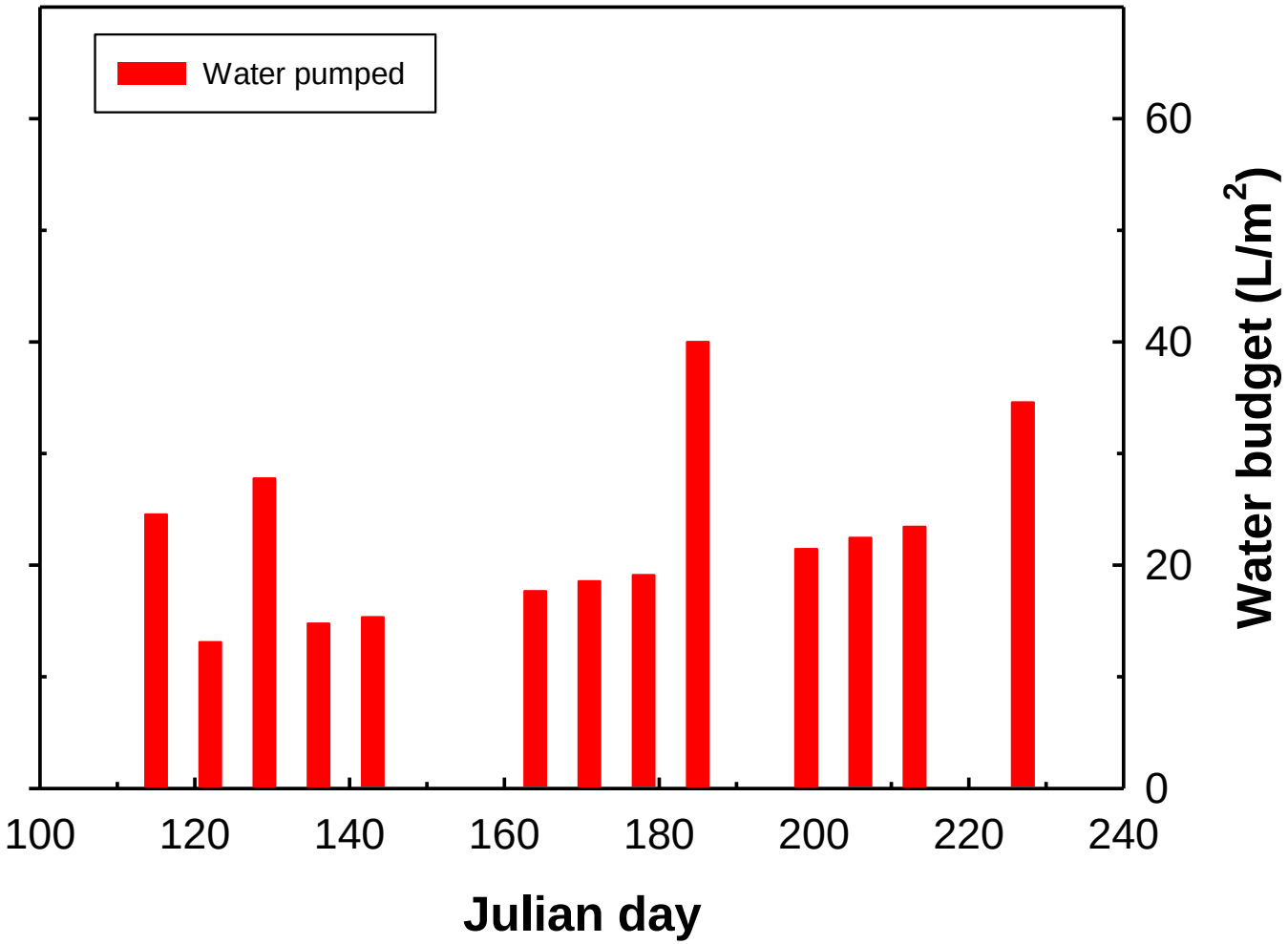
Above Ground



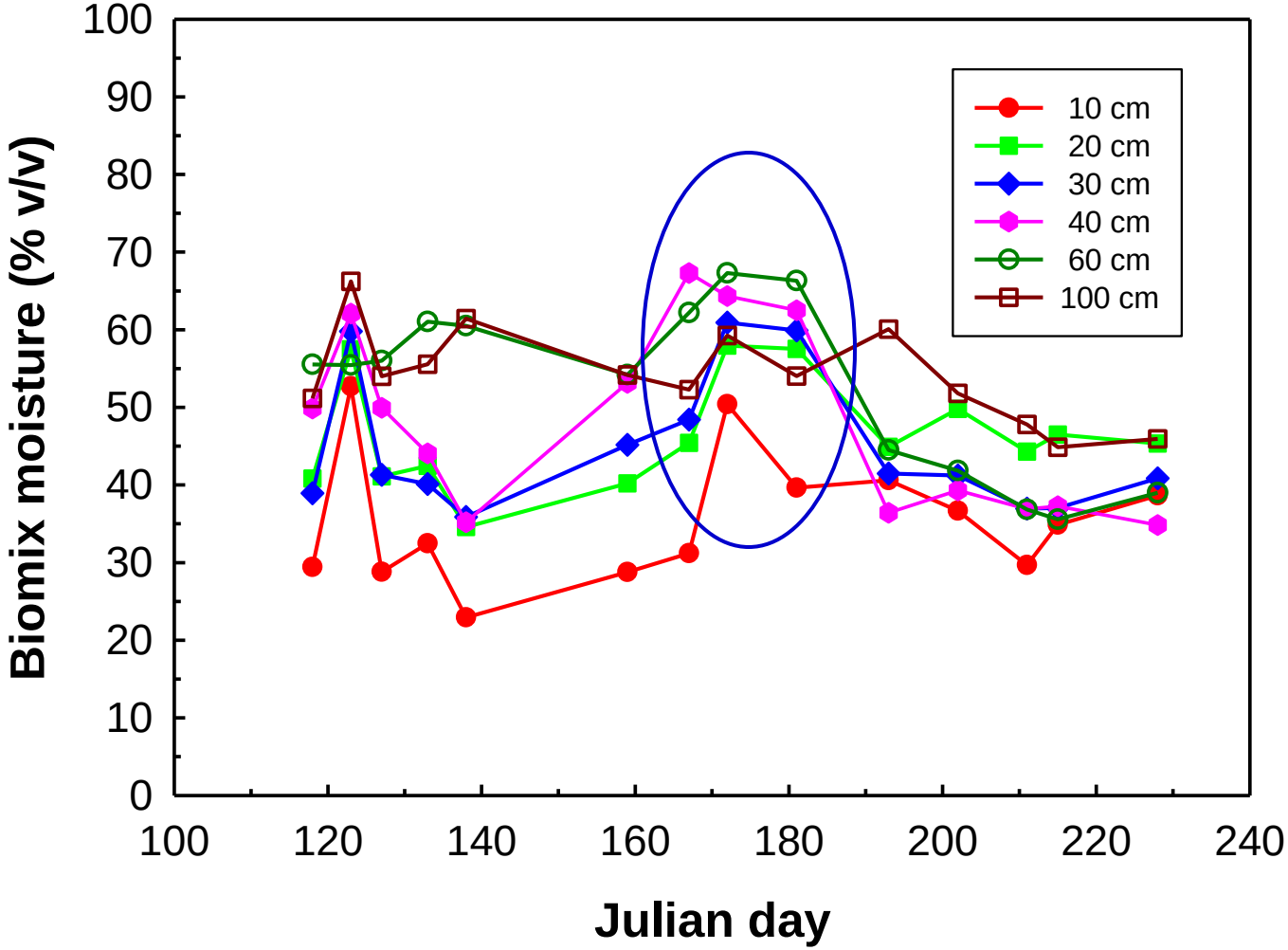
Below Ground – water inputs (IH)

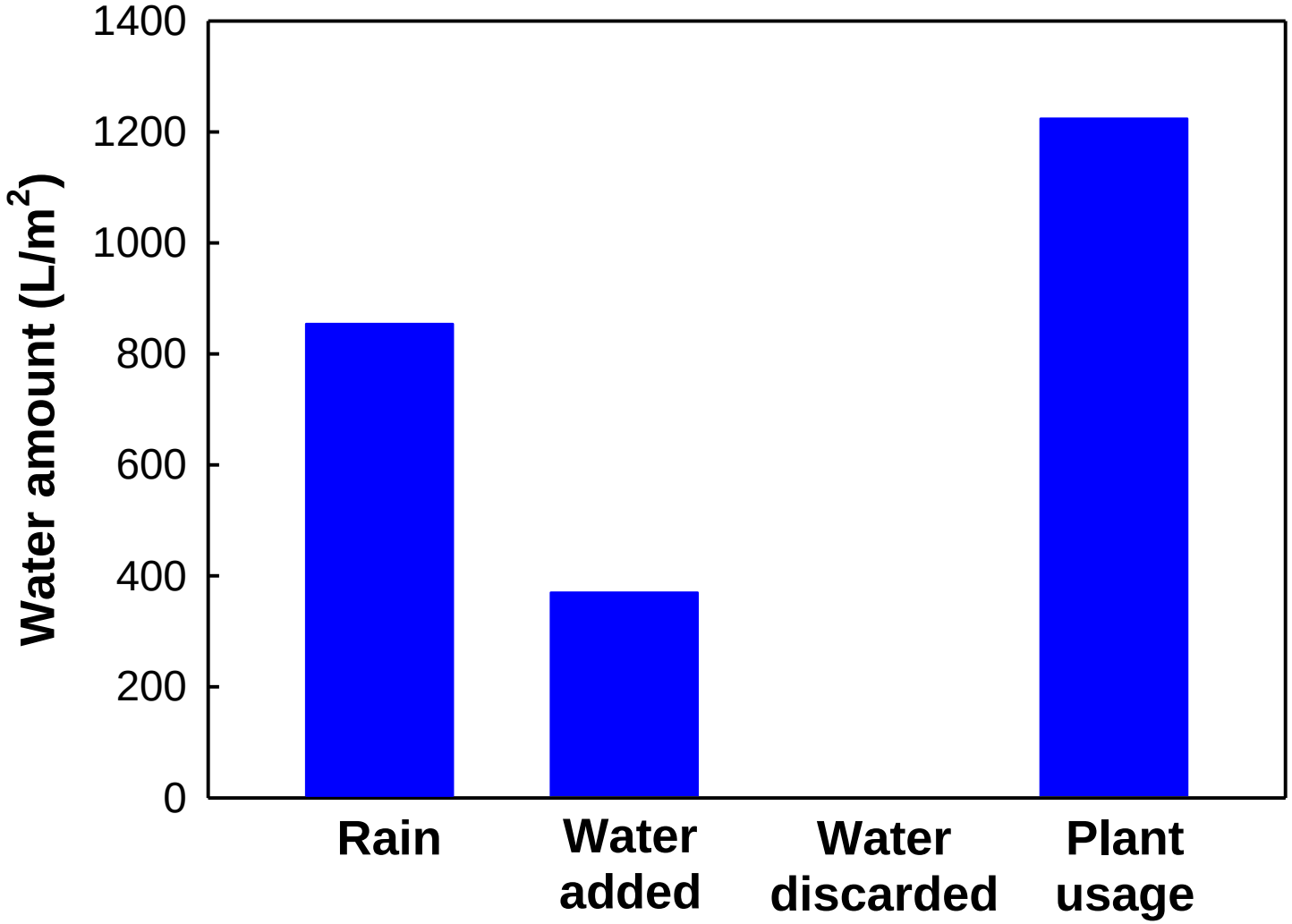


Below Ground – water removed (IH)



Below Ground – Moisture content (IH)




1400
1200
1000
800
600
400
200
0
Water amount (L/m2)
Rain
Water added
Water discarded
Plant usage

Conclusions

- Biobeds were easy to construct using local materials, as advertised by Sweden;
- Closed loop systems seem unavoidable in our regulatory environment;
- System response to moisture should be better defined;
- Above-ground installations may address some practical aspects:
  - Increasing surface area for evaporation
  - Ease of changing shape, location, replacing biomix

Acknowledgements

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Bayer CropScience

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University of Saskatchewan

Canada