

**Gender dynamics of
weed management under conservation agriculture:
Insights from the Eastern Indo-Gangetic Plains of South Asia**

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Outline



Background

- Despite known potential yield, time saving and cost saving benefits, CASI uptake in the EGP is limited
- Under the CA package, Zero Tillage (ZT) technology is widely promoted in the EGP
- Use of ZT has the potential to change the practices of weed management in the region
- Prior studies are mostly based on agronomic trials and less focused on farmers' lived experience and socio-economic impact



Research objective

To analyze knowledge, perceptions, and responsibilities,
and any changes thereof,
of male and female farmers with respect
to weed management practices under
conservation agriculture in the Eastern
Gangetic Plains of South Asia



Research questions

- How do weed knowledge and identification skills differ between male and female farmers?
- What are the farmers' lived experiences of using or considering using herbicides under ZT systems?
- How do gendered roles, responsibilities and time contribution *for weeding* change when a household practices conservation agriculture?
- What are the time, cost and labor implications of various weed management techniques for livelihoods and empowerment?

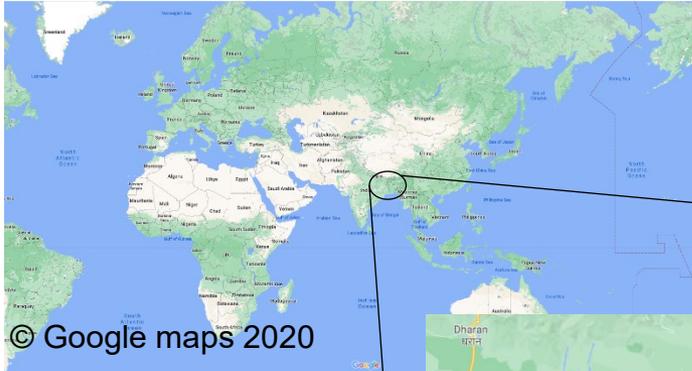


Research locations

Nepal: *Sunsari*

Bangladesh: *Rangpur and Rajshahi*

India: *Cooch Bihar, Malda, and Purnea*



Research methods

- Photovoice - quantitative, qualitative and visual data
- Semi-structured qualitative interviews



Results: Common weeding techniques



A. Zero tillage

- Herbicide application

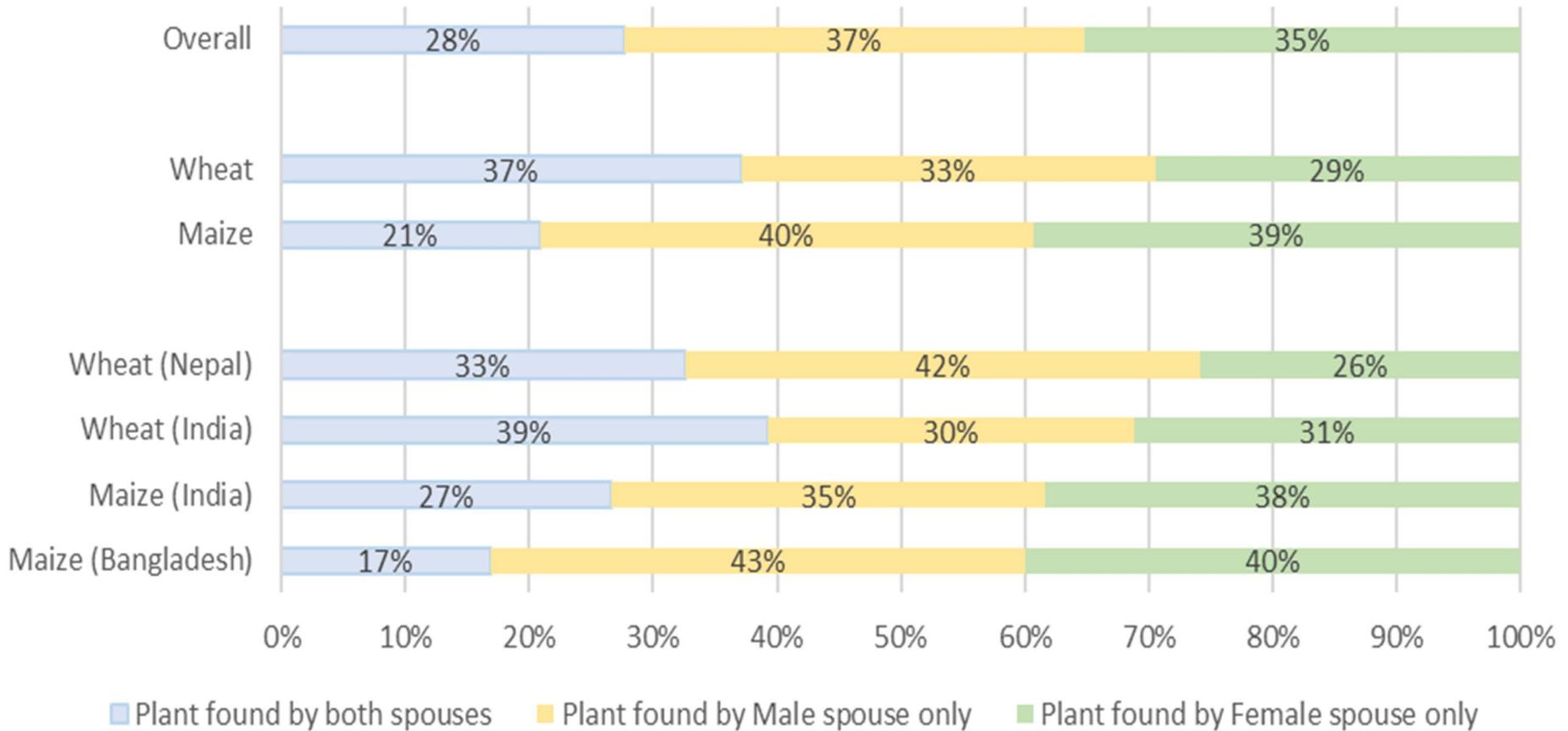


B. Conventional tillage

- Manual – handpicking, mechanical weeder, spade, tilling
 - Herbicide application
 - Interrow hoeing/ploughing
- ❖ Different labor arrangements exist between family & hired labor



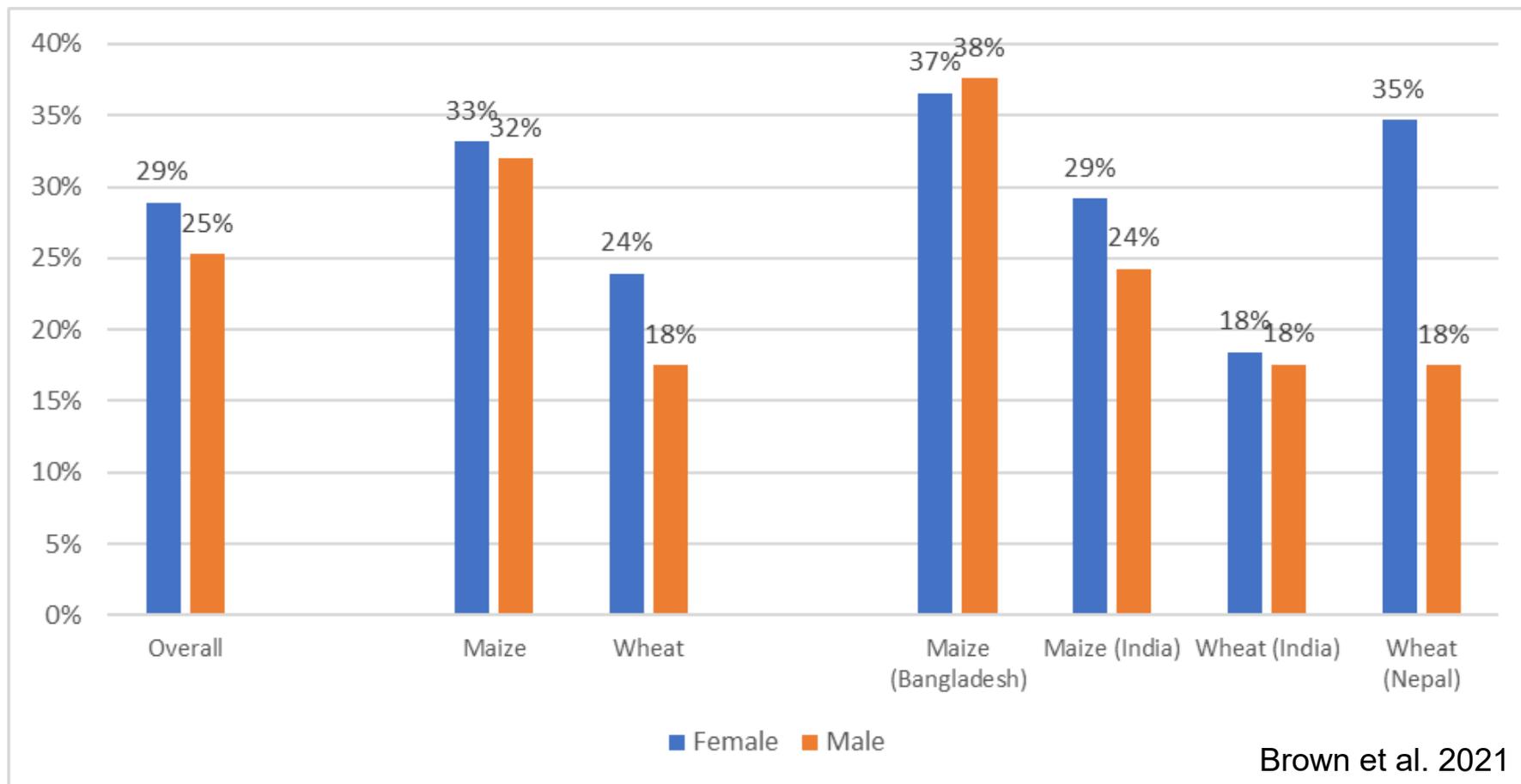
Results: Weed identification patterns



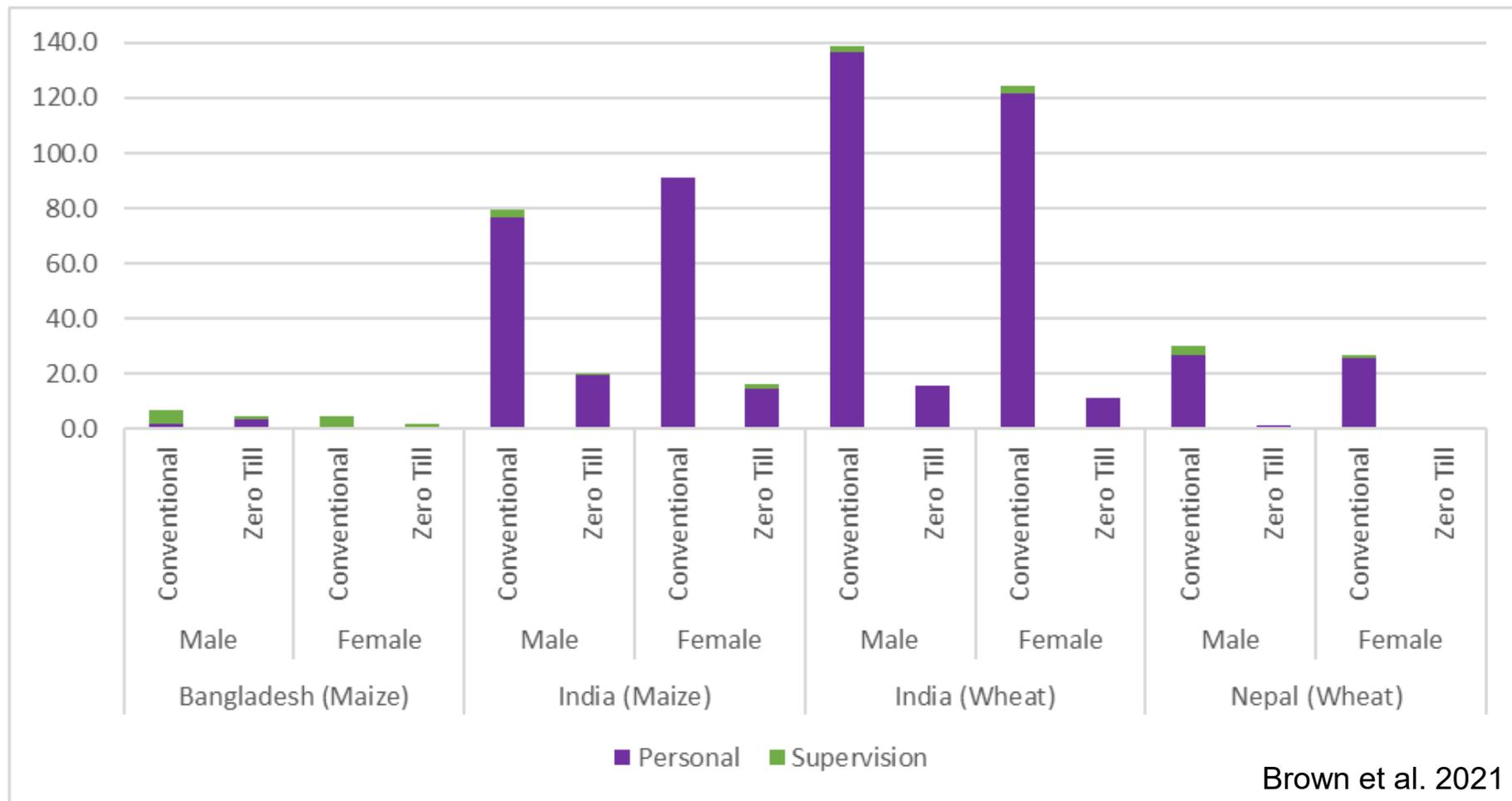
Brown et al. 2021



Results: Naming the identified weeds



Results: Time savings (hours) in transition from CT to ZT system



Brown et al. 2021



Results:

Herbicides, normalized use, different perceptions

Positive (long term ZT users)	Negative (ZT, short term or non-users)
<ul style="list-style-type: none">• Reduced time and cost• Reduced labor use• Reduction in the drudgery caused by manual weeding	<ul style="list-style-type: none">• Fear of unintended damages to the crops• Preference for known practices - mindset• Limited information and understanding



Results: Gendered Implications

- No ZT-led shifting of burden in weeding from males to females is observed
- Herbicide sprays have become an adult male's domain due to the tank design and weight
- Women perform support roles such as fetching water, handpicking reappeared weeds, etc.
- Gendered intrahousehold labor distribution for weeding is influenced by socio-cultural norms and religion
- Gender norms are changing – “Women can...why will they not be able to operate a tractor?” - A respondent from India



Final remarks

✓ **Cost and time effective technologies:**

- ✓ Enabling environment for greater extension and advisory services.
- ✓ Utilization of saved time: equitable benefit sharing?

✓ **Herbicide use – normalized weed management technique under both ZT and CT systems:**

- ✓ Agronomic literacy on the use and management of herbicides for weeds.
- ✓ Capacity building and extension education, without leaving women behind, will help to meet gendered aspirations.



Pipeline publications

Brown, B., Karki, E. Sharma, A., Suri, B., and Chaudhary, A. (2021). Herbicides and zero tillage in South Asia: Are we creating a gendered problem?

Suri, B., Timsina, P., Brown, B., Karki, E., Chaudhary, A., Sharma, A., Sharma, R., and Gartaula, H. (2021). Farmers' experience of weed management under conservation agriculture: Insights from the Eastern Gangetic Plains of South Asia



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