



*Like icebergs – 90% invisible from the surface

IFON



An International Fodder Oat Network for ... *Breeding oats for environmental and social change*

A narrative by

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Industry Interface Support Initiative





Introduction, by Adrian Russell

Explaining:

- What does IFON do?
- What are IFON's goals?
- Who already belongs?
- Who can join"

Audio only 

ctrl+click the URL to view video

https://www.youtube.com/watch?v=x0QrAG_QMp8



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Key points from introduction

- Social enterprise ideal model, now open to wider public and private sector, including individuals.
- Other countries welcome - ready to expand, subject to finance.
- Membership free – start-up endowments of germplasm required.
- Endowments of leafy and/or late types, surplus (discards) from conventional oat breeding programmes, gladly accepted.
- Other forms of assistance greatly appreciated.
- Scope and urgent need to expand inclusion of, ryecorn, triticale, and companion crops, as a priority.



Historic Background

- Our globally co-ordinated initiative, where it started and how it grew?
- Modern shuttle breeding started 1950s – reached Himalayan Hindu Kush, 1979/80.
- NZ – Canada original leading initiative.
- Global potential – *broadly adapted*.
- Mitigates climate, and facilitates social change – *increased food security*.
- *40+ years of outreach – still under utilized, and under resourced.*



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CV: NZ Makuru

Azad Kashmir, 1979-80

Nepal Case Study: 1980 - 2000

- Built on experience and outcomes in NZ, Canada, Peru and Pakistan – overlapping agro-ecologies.
- Jump-started with bulk import and country-wide distribution, and farmer, on-farm evaluation.
- 20 tonnes of seed imported from NZ, under ADB first Livestock Project.
- Included professional livestock & agronomy support.
- Demonstrated high levels of cross over between these developed and developing economies.
- Applied to spring & facultative types
- Winter & wide-cross genetics important in background breeding.

Khimti Nepal 1980s, 5 days walk home, CV NZ Makuru



Nepal Case Study: 2000 – 2019 by John Hampton



- On-going NZ oat breeder participation.
- Segregating materials from NZ re-selected in country, across altitude sequences.
- Panicle rows established, single ear threshers provided, varieties released.
- Farmer and commercial seed enterprises established.
- **Spring-board for the Balkans & IFON.**



Global Spread of NZ Fodder Oat Genetics, 2022



Wide range of over-lapping agro-ecologies

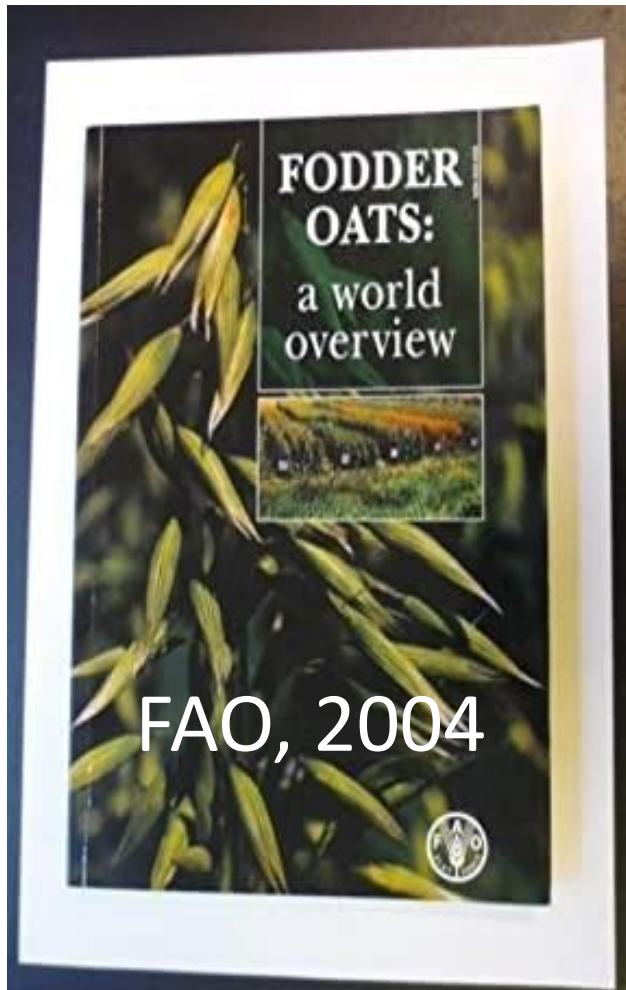
↔ Shuttle Breeding



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Balkans Case Study:2020 – 22

- Need and potential identified during 1990s.
- Philanthropic assistance requested in 2020 to help jump-start Balkan fodder oat improvement initiative, for impoverished families.
- Agro-ecological spread of NZ fodder oat genetics accepted as start-up pool of genetic resources.
- FAO overview plus Nepal model reconfirmed as suitable template including recommendation for IFON
- Ultimate start-up catalyst: Covid-19 pandemic.





Balkans 2020-22: self-funded

- Initial philanthropic endowment of 38 kg of breeders seed of NZ D1, received, delivered and planted, 2021 & 2022.
- Spread over one research station in BiH, plus 6 farmer sites across altitude sequence (450 – 800 m).
- Compared with local grain CV “Sana”.
- Back-up increase in Croatia 2021 and 2022.
- Panicle rows selected.
- Flexiseeder machinery technologies endowed.





Balkan Progress, continued

- Additional 39 NZ lines endowed by second entity, in time for autumn planting 2021, in NZ.
- Re-selected following spring.
- Strong selection for earliness and broad leaf traits.
- Selected lines harvested, delivered and spring planted in Balkans (2022).



Livestock Interface

Balkans Progress, continued

- Potential for combining Balkans and NZ genetics, in collaborative programme .
- Target earliness and disease tolerance from Balkans + whole-plant yield from NZ.
- BiH endowed seed of 450 entries from the Banja Luka Institute gene bank.
- Forwarded to the James Hutton Institute, (Scotland) spring 2022.
- 250 entries increased and sending samples on to NZ. Sadly, remaining 200 samples did not germinate – too long in storage, in BiH.



Livestock Interface

Wrap-up, Oct-2022

- Croatia joined, Turkey in process of joining (endowed genetics), Latvia joined recently, other Baltic and near-by states interested.
- Eu Horizon and other donor interfaces identified, contacts made – working interfaces established.
- Aust, NZ, UK & Canada associate membership to EU Horizon Programme imminent – especially promising stepping stone.
- Normal seed industry procedures and practices adopted - legally binding.



Wrap-up continued, Oct-2022

IFON Programme and project portfolio framework expanded:

- IFON – U (umbrella co-ordination and facilitation)
- IFON – B (plant breeding & gene bank support)
- IFON – N (international nursery & material exchange)
- IFON – S (seed technology, certification & plant variety rights)
- IFON – A (agronomy support, including research)
- IFON – L (livestock interface)
- IFON – I (industry, harvesting and processing interface)
- IFON – M (machinery interface and pro-active support)
- IFON - H (humanitarian assistance and climate mitigation)



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Closing Comments:

- Spans 4 generations of NZ oat breeders*
- Internationally significant outcomes, by global multi-generational team .
- Global contributors many and varied, beyond listed authors and abstract acknowledgements.
- Lifetime passion and commitment, by Dinesh Pariyar & Kishor Shrestha from Nepal, & Torbjörn Leuchovius from Sweden, plus other founding members.
- Key finally turned by: (a) the pro-active involvement of the **Balkans** (b) the initial philanthropic **endowment of 38 Kg of NZ D1 seed**, and (c) end-user institutional infrastructure provided by “**the small multi-crop thresher**”.

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Additional Acknowledgements

- Those listed as authors and in the abstracts' acknowledgements, are the tip of the iceberg.
- Additional examples of collaborative input, including parallel projects, supporting and utilizing fodder oats, may be viewed at these links:

[* 4 x 2016 IOC posters sent to Prof Hampton morning of 27 9 22](#)

[*https://solve.mit.edu/challenges/sustainable-food-systems/solutions/26289](https://solve.mit.edu/challenges/sustainable-food-systems/solutions/26289)

[*https://solve.mit.edu/challenges/resilient-ecosystems/solutions/48164](https://solve.mit.edu/challenges/resilient-ecosystems/solutions/48164)

[*\(NepalOat\)](#)

<https://youtu.be/79hRxScH6VE>

XX https://flexiseeder.com/index.php?id_product=9&controller=product

[*www.flexiseeder.com/index.php?...](#)



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Take home message:

- Besides Peru, our HHK (Nepal, Pakistan, Afghanistan) and Balkan routes go back to the 1980s
- They are reinforced additionally, with other crops* and country experiences in Somalia, Ethiopia, Cambodia, Myanmar, Bangladesh, and Indonesia, for example.
- * Including, but not limited to, vegetables, wheat, barley, ryecorn, triticale, teff, fodder herbs, legumes, grasses, and maize
- ***It has taught us humanitarian relief must be a “continuum”, for marshalling, providing and integrating disaster preparedness and mitigation; reconciliation, rehabilitation and re-integration; (re-) development and production.***



These messages are:

- As relevant today as before, stretching into the future.
- There is an increasing need, the way the world is heading with climate and war.
- **Through our network, your everyday activities can help globally, collectively, no matter how small, in ways that you never previously thought possible on the basis of agro-ecological overlap.**

Thank you.