

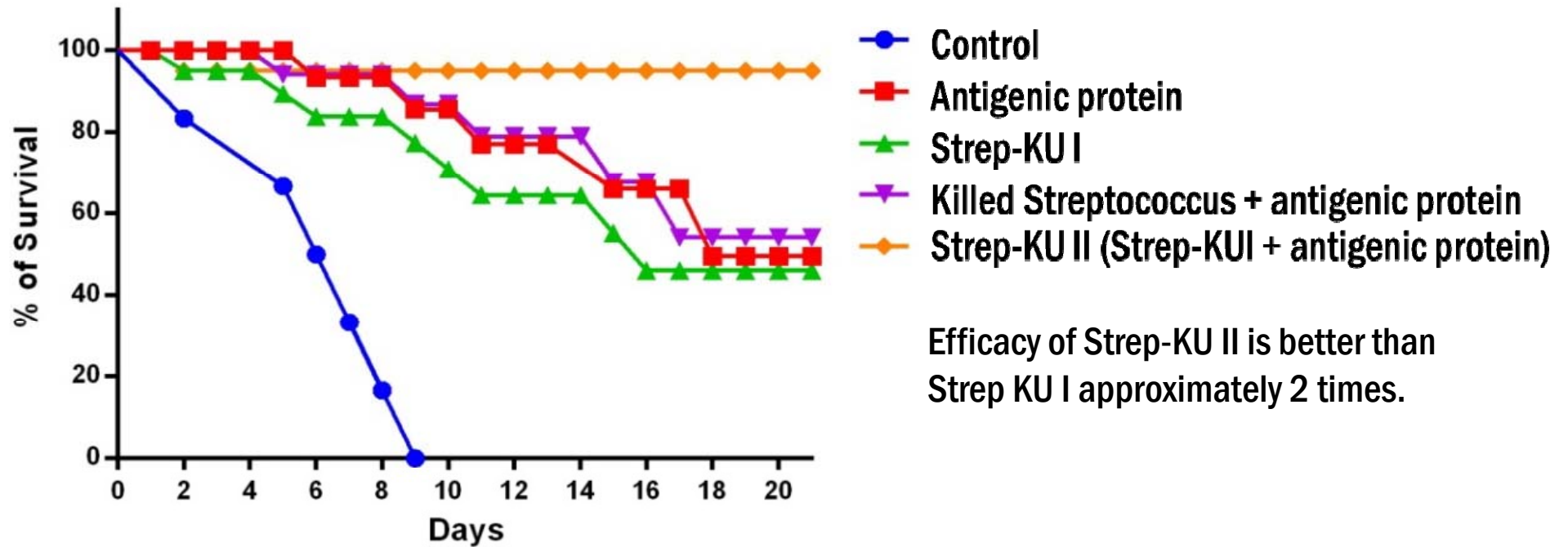
Practical formulated vaccine including subunit vaccine production

Combination of subunit vaccine and inactivated vaccine

1. Control
2. Antigenic protein (Reverse Vaccinology)
3. Strep-KU I
4. Killed Streptococcus + antigenic protein
- ➔ 5. Strep-KU II (Strep-KUI + antigenic protein)

Results

Percent survival for Nile tilapia after challenge *with S. agalactiae*



Efficacy of Strep-KU II is better than Strep KU I approximately 2 times.

Remarks

- 1) Immunogenicity of *S. agalactiae* vs other tilapia pathogenic bacteria
- 2) Tilapia health and vaccine response



INNATE AND ADAPTIVE IMMUNITY RESPONSE OF NILE TILAPIA (*Oreochromis niloticus* Linn.) TO DIETARY SUPPLEMENTATION OF VITAMIN C AND β -GLUCAN

Yongsun Lee^{1*}, Sasimanas Unajak²
and Nontawith Areechon¹

¹ Department of Aquaculture, Faculty of Fisheries, Kasetsart University, Bangkok 10900, Thailand

² Department of Biochemistry, Faculty of Science, Kasetsart University, Bangkok 10900, Thailand

Methodology



- 30 g Nile tilapia were fed commercial diet with different feed supplements for 2 weeks

Treatment 1 (Control)

- Commercial diet

Treatment 2

- Commercial diet + Vitamin C (1g/kg feed)

Treatment 3

- Commercial diet + β -glucan (0.5g/kg feed)

Treatment 4

- Commercial diet + Vitamin C (1g/kg feed) + β -glucan (0.5g/kg feed)

Vaccination



After two weeks of feeding trial:

- Sub group vaccinated with formalin-killed vaccine of *S. agalactiae*
 - Intra-peritoneal (IP) injection with 100μl
- Antibody titer measured every week for one month



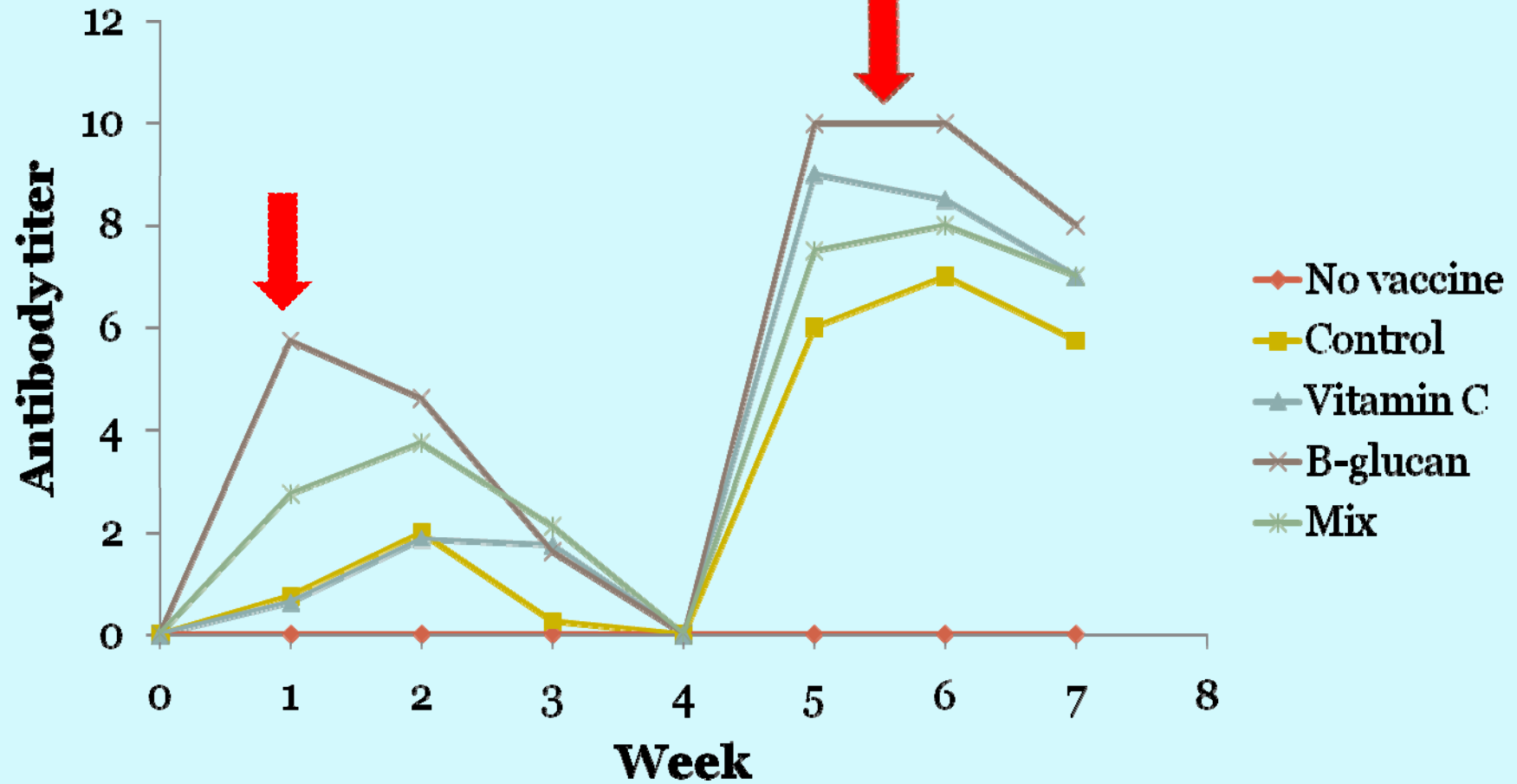
20 fish per replicate tanks challenged with *S. agalactiae*

Mortality observed for 14 days

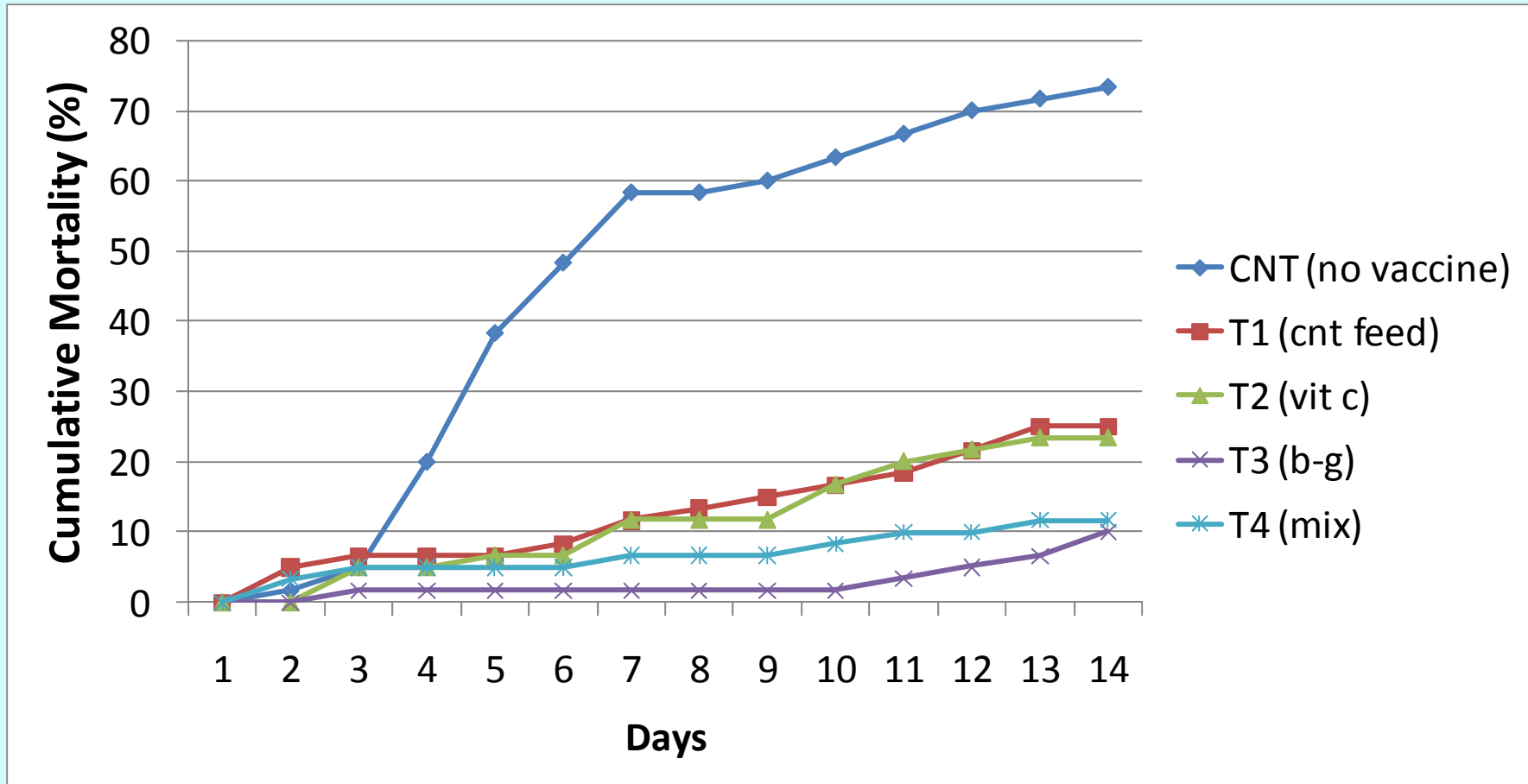
Sub group of vaccinated fish booster with 2nd vaccination

Antibody titer were measured every week for one month

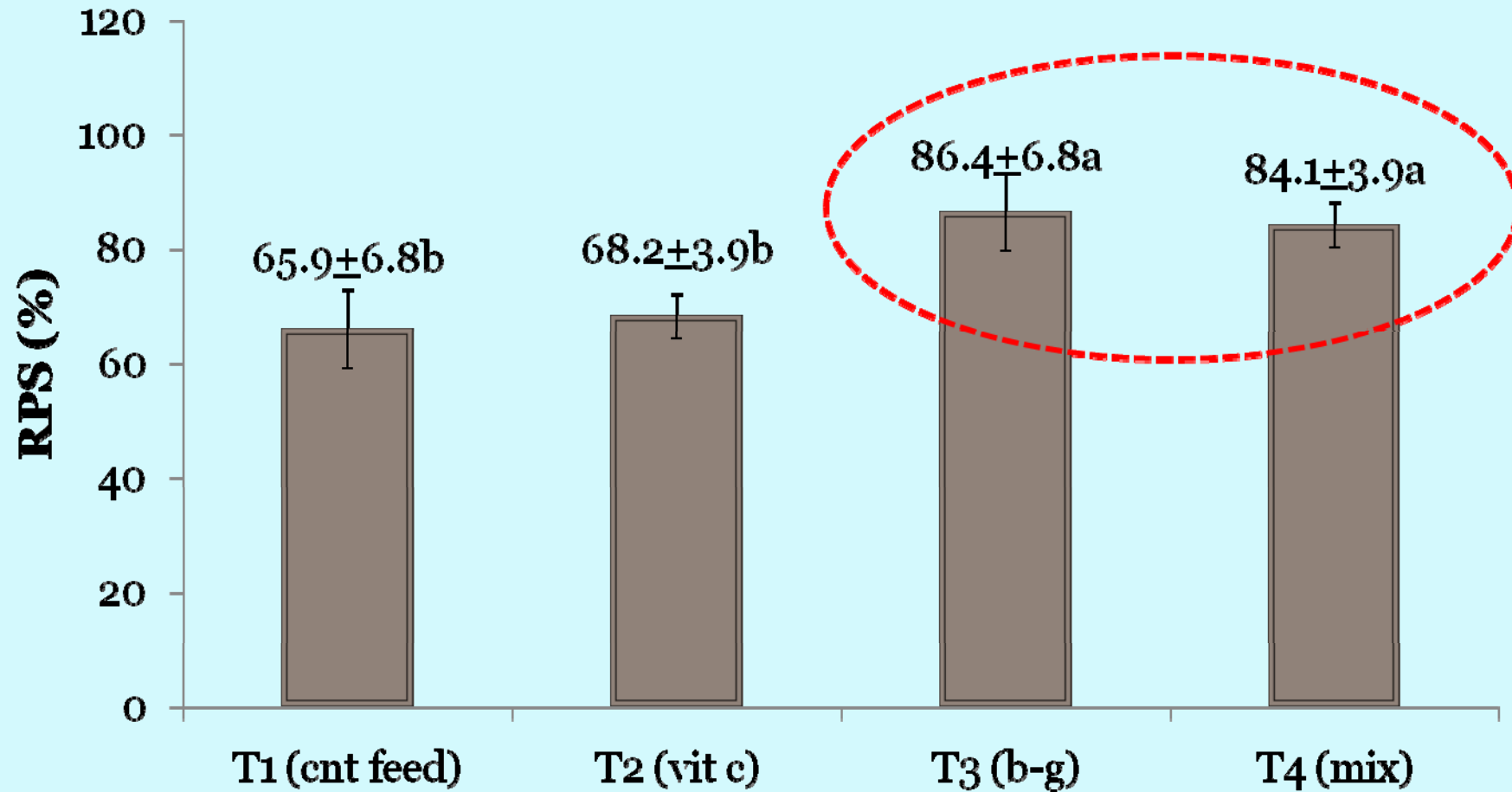
Antibody Titer



Cumulative Mortality (%)



Relative Percentage Survival (%)



Remarks

- 3) More practical and effective vaccine delivery system
- 4) Factors affecting vaccine response

Aeration and water flow



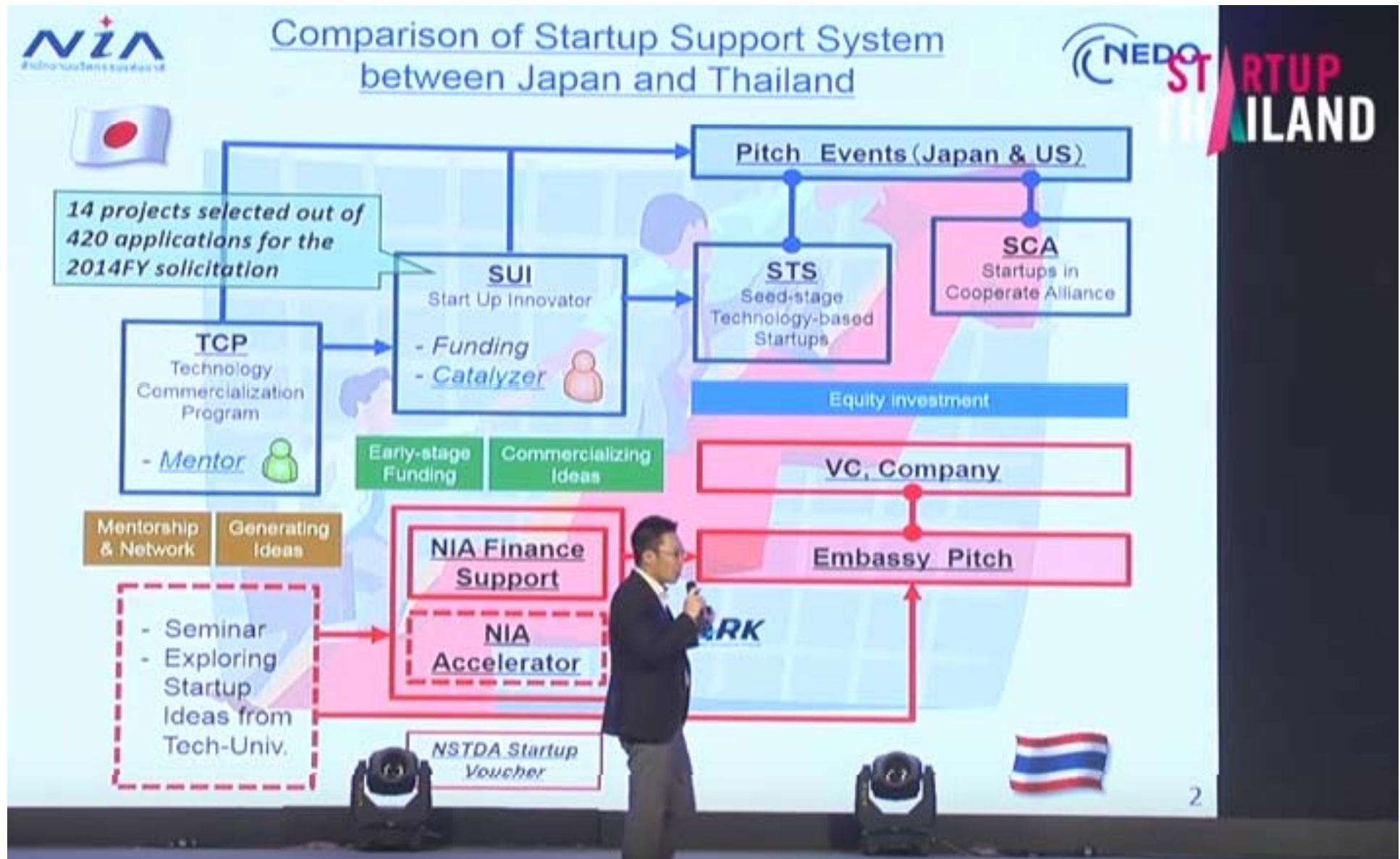


“Thailand 4.0 : Agriculture, food and biotechnology”

17 March 2017, Kasetsart University



NEDO-NIA Collaboration Science-based Startup Eco-system



Acknowledgments

SATREPS



Faculty of Fisheries, Faculty of Science, KU
KU Research and Development Institute (KURDI)



Tokyo University of Marine Science and Technology

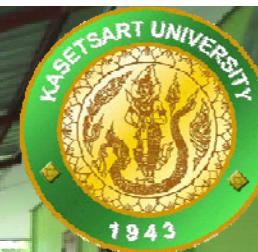


NRCT - JSPS Asian Core Program
in Fishery Science



Department of Fisheries

Tilapia farmers and fishery officers



Department of Aquaculture, Faculty of Fisheries
Department of Biochemistry, Faculty of Science
Kasetsart University, Bangkok, Thailand



Thank you

