

General discussion on hot-water treatments indicated that treatment definition, equipment, and actual treatment conditions require special attention, as does commercial appreciation of recommended treatments. It was noted that pulp and/or peel temperatures are the important factors in treatment efficacy rather than water temperature.

Mango ripening disorders are a continuing source of interest and speculation.

Storage and Ripening*

Chairman: Dr Alex Buchanan, Editor, ASEAN Food Journal

Rapporteur: Dr Lindy Coates, Queensland Department of Primary Industries,
Australia

NINE poster-papers relating to the storage and ripening of tropical fruit were presented in this session.

Mr Kouno from Japan described an online device to detect hollowness and measure ripeness of watermelons by acoustic impulse responses. The device provides an alternative to the traditional slapping method for detecting hollow or overripe watermelons. The signal produced from tapping the fruit is assessed using a wave-analysing device. Fruit maturity can be related to the frequency of the signal produced.

Mr Kouno also reported on a feasibility study conducted into the use of near infrared (NIR) spectroscopy for measuring internal quality of pineapples and mangoes. It was found that the sugar content of fruit could be adequately correlated with NIR reflectance properties.

Dr Kadiyala from India reported on the distribution of minerals in Alphonso mangoes during ripening. This was correlated to internal breakdown ('spongy' tissue) in the mesocarp. Calcium, phosphorus, and potassium levels varied throughout the peel and flesh of fruit. It was found that 'spongy' tissue was low in calcium and high in potassium.

Dr Kadiyala also described the effect of calcium on the physicochemical changes in Alphonso mangoes during ripening. Calcium chloride was applied as either a preharvest spray or by postharvest vacuum infiltration. Calcium-treated fruit showed delayed ripening, although some internal fruit breakdown did result from the treatments.

Several papers dealt with low-temperature storage of tropical fruits.

Ms Yon from Malaysia reported on the effects of low temperatures on the storage life and quality of carambola/starfruit (cultivar B₁₇). Fruit storage life was dependent on both fruit maturity and storage temperature. Mature fruit had a longer storage life than immature fruit. Fruit held at 5 or 10°C had a storage life of up to 4 weeks, whereas fruit held at 15 or 20°C could be held for only 1 week.

Dr Mahendra from Indonesia presented the results of a study on the incidence of chilling injury in salak ('snake') fruit. He concluded that low temperatures (3–5°C and 7–10°C) extended storage life by up to 15 days, but the treatments caused chilling injury.

Mr Gomolmanee from Thailand reported on the use of sulfur dioxide fumigation to reduce chilling injury symptoms in longan fruit stored at temperatures of –25°C to 2.5°C. Chilling injury, which occurred in unfumigated fruit, was observed as dark brown discoloration of the fruit peel. The peel of fumigated fruit remained yellow-brown. Ion leakage from the peel could be used to indicate the chilling injury symptom.

Mr La-Ongsri from Thailand presented two papers on chilling injury in lychee. As in the

* Contributed poster papers on 'Storage and Ripening' were presented over two sessions in the conference program.

previous paper, chilling injury could be related to ion leakage from the peel. Chilling injury occurred in fruit stored at 0 and 2.5°C, but not in fruit stored at 5°C. The symptoms of chilling injury could be alleviated by fumigating fruit with sulfur dioxide followed by an acid dip.

Disinfestation and Primary Processing — Storage and Ripening

Chairman: Dr Onnop Wara-Aswapati, Suranaree University of Technology, Thailand
Rapporteur: Dr Wasim A. Farooqi, Nuclear Institute for Agriculture and Biology, Pakistan

SEVENTEEN presentations were made in this session. The first paper, from Mr Chen, outlined the general status of horticultural crops in the Jiangmen region of Guangdong Province, China, giving details of area, production, handling, and processing, with particular reference to quarantine. The second presentation was from Dr M.M. Saleh (Malaysia), who explained the fruit fly problem and disinfestation research in Malaysia. Professor Paull (USA) then spoke on the 'Insect quarantine treatments and fruit ripening'. The importance of the quarantine treatment on fruit was discussed, including the side-effect of fruit ripening. Since quarantine treatment is mandatory, however, treatment must be adjusted so that accelerated ripening of fruit does not create a problem in fruit marketing.

Dr Sharp (USA) discussed the use of microwaves as a quarantine treatment to disinfect commodities of pests. She noted that microwaves were a safe postharvest treatment without health hazard. Hot water and cold treatments to control fruit flies were also discussed and compared. In cold storage methodology, the possibility of chilling-injury to the fruit was also highlighted. Mrs Yuniarti of Indonesia then described experimental work on the effect of pH and sugar content on apple cider quality. Dr Wuryani of Indonesia made a presentation on the osmotic dehydration of membrane-coated pineapple. In this paper, the benefits of this experimental work on this process in pineapple were described and discussed.

Mr Seberry of Australia described the effects of plantation and postharvest factors on shelf life of 'Williams' banana. The use of calcium carbide in ripening was also explained, as well as environmental (ecosystem) factors that influence the quality of fruit. Bananas from Queensland and northern NSW of the same variety grown under different conditions behaved differently, particularly as regards postharvest chilling sensitivity. The fruit from Queensland (comparatively warmer climate) were more sensitive to chilling than those grown in NSW.

Next presentation in this session was from Dr Acedo from the Philippines, who spoke about the optimisation of indigenous ripening systems for bananas in the Philippines.

Professor Mizrahi of Israel explained the productivity and postharvest behaviour of black sapote (black persimmon) grown in the Israeli Negev Desert. Experimental work carried out on this fruit was described and discussed. Professor Imungi then spoke on storage and ripening of Kenyan bananas. He noted that fibrous and non-fibrous varieties of mangoes were grown in Kenya. Those mango varieties which contained fibres (thread-like structures in the pulp) were consumed locally, while non-fibrous mango varieties were exported.

The next speaker was from Malaysia. Mr Karim explained his work on the storage behaviour of sapodilla. Following storage at various temperatures (10, 15, and 20°C), the quality of the fruit was assessed.

Dr T. Akinga from Japan described fundamental studies on the respiratory properties of some tropical fruits grown in Okinawa. He said the cost of an infrared gas analyser (IRGA) for estimating respiration was so high that not all laboratories or institutions involved in such studies could afford to buy one. He had therefore investigated the chemical estimation of gas (CO₂) released by the fruit and had found this method to be suitable and significantly cheaper.

Professor S. Ben-Yehoshua of Israel, in his presentation, described the methodology of reducing decay and thus extending shelf life of bell-pepper and mango fruits by modified atmosphere (MA) packaging. He mentioned that this technique works and has beneficial effects. Perforation in the polyethylene packaging was found more effective for better storage and even ripening of fruit. Dr S. Wilson Wijaratnam of Sri Lanka presented a paper on the modified atmosphere storage of bananas at chilling temperatures, describing some of the research done in this area. The use of MAs reduces the risk of incidence of physiological disorder (chilling injury) to banana fruit.

Dr Jingtair Siriphanich of Thailand spoke about the factors that influence the ripening of 'Chance' and 'Monthong' durians. The experimental work carried out in his laboratory was explained and discussed. The next presentation was from Professor A.K. Thompson of U.K. regarding storage of fresh pineapples. He explained the possible use of modified and controlled atmospheres, as well as hypobaric storage technology for the conservation of fresh fruit. The economics of some of the techniques, such as hypobaric storage, is a limiting factor at present.

The last speaker of this part of the session was Dr Benzioni of Israel. She spoke on the effects of ethylene application on fruit postharvest characteristics of the kiwano (*Cucumis metuliferus*). Ethylene application helps to obtain an even colour and accelerates ripening for uniform supply.

Conclusion

The presentations made in this session highlighted the important problems of fruit production, handling, storage, and distribution, i.e. disinfestation, processing, storage, and ripening. Disinfestation of fruit by the use of fumigants (chemical) or even in some cases low-level gamma irradiation (~ 200 Gy) is necessary when quarantine regulations require it. While using disinfestation techniques there is always a risk of side-effects such as accelerated ripening or even skin-injury as, for example, by ethylene dibromide fumigation in the past. Similarly, the availability of appropriate storage facilities, especially in the developing countries of Asia, is an important consideration. The positive effects of MA and CA storage were discussed. This type of storage, as well as extending shelf life, significantly reduces the possibility of chilling injury to the fruit. There is a need for more research on CA and hypobaric storage of tropical fruit.

It is the responsibility of the scientific community to do research on postharvest aspects of fruit so as to develop a 'technology' which is cheap, technically feasible, and acceptable to the consumers, and offer it to the growers and traders so that everyone receives the benefits of the research.

Workshop Reports

Controlled Atmospheres/Modified Atmospheres

Conveners: Adel Kader and Daryl Joyce

Conclusions and Recommendations

1. CA/MA must be considered as a supplement to (not a substitute for) maintenance of optimum ranges of temperature and relative humidity for extending postharvest life and retaining good quality of fruits.
2. Successful application of CA/MA technologies will depend upon minimising/avoiding stresses caused by physical damage, high temperatures, low temperatures (chilling injury), water, and ethylene. Effective control of postharvest diseases [using an IPM (integrated pest management) approach, including heat treatments, fungicides, and/or fungistatic levels of CO₂] is essential to maximising the benefits of CA/MA.
3. Use of CA during transport vs use of MA packaging depends on value of the commodity, length of postharvest life desired, and comparative cost, including environmental impact.
4. Even under the best CA/MA conditions, postharvest life of most tropical fruits will likely be limited to 2–6 weeks for transport and/or temporary storage at 10–16°C (depending on commodity and variety) plus 3–10 days of subsequent ripening (if needed), distribution, and keeping at the consumer's home. This will permit use of sea transport instead of air transport.
5. Research is needed to identify the optimum CA/MA conditions for intact and lightly-processed tropical fruits, especially those for which little or no information is available. The potential for fungistatic and insecticidal CA should be examined. The cost–benefit ratio of CA/MA and of ethylene removal merits evaluation.
6. CA/MA is very promising for lightly-processed fruits and should be evaluated for tropical fruits, including microbial safety considerations.
7. Research on CA/MA requires specialised facilities for gas mixing and analysis costing US\$100 000 or more. Thus, it would be advisable to select one research centre in each country to focus on this research area.

Postharvest Physiology

Conveners: Robert Paull and Connie Lizada

THE attempt was to project future physiology research directions without reference to a specific crop. The directions can be grouped in various ways, all having difficulty associated with the importance of a crop to a region, and length of time needed to develop information or resources. This difficulty precluded us from placing the various research areas in priority order. For ease of presentation two research areas can be used to group the topics considered.

A. Information and Technology Development

The areas falling under this topic were germplasm resources specifically related to postharvest characteristics. This overlays with molecular biology, preharvest factors influencing postharvest response, water relations of tropical fruit, physiology of the plant response to disease, control of ripening, cause of postharvest disorders, including responses to heat and cold, physiology of minimally processed fruit, controlled and modified atmospheres, and development of non-destructive maturity indices.

B. Applied Research and Information Gathering

This is taken strictly from a plant physiology perspective. An area that would enable the transfer of physiology data to the commercial sector is the development of baseline data on tropical fruit. This would include respiration and ethylene production rates, temporal patterns of respiration and ethylene production rates, response to ethylene at all stages of handling at very low and ripening induction levels, and time–temperature responses to cold and heat. The crop–time parameter matrix would be useful not only for research to appreciate the gaps in our knowledge but also to those involved in commercial handling.

A worldwide network of individuals directly involved in tropical fruit postharvest research may take as a prime objective the development of such a tropical fruit crop physiology–knowledge matrix. This network does not necessarily have to be formal or permanent. A small ad-hoc group with key members from different tropical regions of the world may be more effective.

Disinfestation

Conveners: Nathan Ganapathi and Peter Hofman

THE working group on disinfestation felt that harmonisation should be achieved locally (within the country) as well as internationally (between countries). It also agreed that a generic approach to disinfestation could in the long run standardise disinfestation treatments. (Generic approach refers to grouping pests and diseases into groups, e.g. genera/species of fruit flies.)

The definition of disinfestation must be spelt out clearly, e.g.

- The old definition or concept in relation to fruit fly disinfestation would be expecting 100% mortality — zero tolerance — no live larvae.
- The other definition that needs to be considered would be in relation to irradiation — live larvae but nil capacity to multiply. Could we consider probit 9 emergence based on sterility or probit 9 emergence based on total mortality of larvae.
- One of the problems encountered in irradiated commodity is that there is no clear-cut way to determine if the larvae have been irradiated.

A systems approach is needed to ensure tested commodity has nil or very low infestation levels. More information will be required for this.

Disinfestation can be divided into two major areas:

- preharvest, where not much information is available; and
- postharvest which is generally associated with plant quarantine treatments.

It was decided that two approaches are possible, one practical, the second idealistic.

For a generic approach to disinfestation the following must be determined. Disinfestation of: naked insects; insects in fruits; and fruits alone.

The concept of generic approach will have to look at the range of doses in relation to the pests and the commodity.

There is a need to build up or collate a database on the tolerance range of fruit flies to heat and cold.

One question that was raised was 'Can physiological tolerance of insects be grouped?'

The working group also emphasised the fact that as far as possible there needs to be standardisation of rearing media and facilities used.

In relation to protocols, an understanding has to be reached as to what probit levels we are aiming at.

Toxicological studies and end-point mortality will also have to be considered.

The pest risk analysis concept also needs to be developed further. There is a need to develop more scientific data and, based on these, to make recommendations to plant quarantine organisations to accept new proven treatments. The working group concluded that to overcome problems encountered in disinfestation there must be a coordinated international approach.

Diseases

Conveners: Greg Johnson and Sing Ching Tongdee

Conclusions and Recommendations

1. In any research on the storage of tropical fruit, disease control is a primary consideration, yet the expertise to adequately address the problems often is not available. The move away from the use of postharvest fungicides will require far greater understanding of pathogen biology than is necessary for the implementation of control techniques based on chemicals. The appointment of specialist postharvest pathologists to undertake research on the biology of postharvest pathogens should be considered in many developing countries.
2. Considerable basic research is required to document the causes of disease in many tropical fruits. Such work is underpinned by training in mycology, and access to an affordable identification service. Workshop participants deplored the introduction of fees for identification services, and endorsed the need for the establishment of an identification service and central culture collection within the region. Regional workshops to train local pathologists in the identification of fungi should be considered. A manual of standard methods for culturing fungi for identification, and diagnostic test-kits for use by non-specialists are also required.
3. The development of proposals for the funding of research on the storage of tropical fruit should actively involve a postharvest pathologist, to ensure that this important research area is adequately resourced.
4. Fine tuning of disease-control technology may be necessary when it is introduced into a country, with attention paid to ensuring that disease-control efficacy is maintained and unacceptable fruit damage avoided.
5. In developing alternatives to fungicides, specific approaches that should be considered in the region include the following.
 - Studies on infection processes and other aspects of pathogen biology.
 - The assessment of biological control agents for fruit pathogens, as they become available under licence from research programs undertaken outside the region.
 - Greater focus on disease-control strategies in the development of heat-disinfestation protocols.
 - Evaluation of preharvest control strategies (including copper fungicides) for the control of postharvest diseases.
 - Identification of preformed antifungal compounds in fruit, and the assessment of the disease-control potential of plant extracts.
 - Development of standard techniques to assess fruit resistance to pathogens.

Biocontrol of Diseases

Conveners: Lise Korsten and Lindy Coates

THE two main issues dealt with in the biocontrol workshop were the initiation of biocontrol programs, and commercialisation.

As regards the former, the importance of selecting the correct isolate and screening assays was highlighted, and the inherent problems associated with these techniques were discussed. It was suggested that *in vitro* and *in vivo* techniques should be run in parallel, even though this is laborious and time consuming.

A few alternative approaches were discussed, such as selective plating techniques and evaluating the spectrum of the antagonist activity against other plant pathogens, which would make biocontrol products more attractive for commercialisation.

The use of industrially important microorganisms currently used in the food processing industry was also discussed, particularly in the context of postharvest biocontrol applications.

The second aspect highlighted in the workshop was commercialisation, and at what stage researchers should hand over to commercial companies. It was suggested that researchers should pursue biocontrol beyond the semicommercial stages, in order to strengthen their negotiating base with commercialising companies. It was also clear that at this stage a specialised team should be established, including a fermentation consultant.

Specifications giving the exact format of the biocontrol agent should be provided before scaling-up of fermentation technology. This must be done in order to provide the most effective form of the antagonist.

The importance of following an integrated approach was once again highlighted, as were problems associated with patenting of biocontrol concepts. The latter is an issue that should be addressed by research groups working in the postharvest arena of tropical crops.

Finally, it was agreed that biocontrol workers should be proactive and establish a working group that can promote alternative disease control options, including not only bioaugmentation but also natural plant products, physical and environmental manipulations, etc., as dealt with in this conference. Such proactive approaches should be aimed at dealing realistically with the public perception of pesticides and alternative control strategies.

Molecular Biology

Conveners: Colin Brady and Porntip Chaimanee

A small group of eight discussed the application of molecular techniques to the advantage of tropical and subtropical horticulture.

The range of techniques available was considered. It was noted that sequence databases were expanding rapidly, and the expanded information base was reducing the initial cost of gene isolation and gene characterisation. The point was made, and not disputed, that genetic manipulation for commercial release should initially involve modifications of the endogenous genes and avoid the introduction of non-plant genes and homologues of the endogenous gene from other species. The need to express genes isolated solely on the basis of cross species homology, and, after expression, confirm the function of the gene product was noted.

There was some emphasis on the advantage of working with plant breeders and, where possible, working with in-bred lines.

The commercial interest in enhanced pest resistance was noted, and the expense of research on pest resistance, with its need for statistical evaluation, was discussed.

There was discussion of desirable gene targets with emphasis on those regulating fruit colour, sugar-loading, and maturity.

A call was made for a registration of research interests in the application of molecular biology to tropical and subtropical fruits, and of a willingness to discuss cooperative approaches. Registered interests are in the following table. The workshop recommended that ACIAR or ASEAN seek to expand and maintain this register.

Activity	Detail	Reference
1. Breeding	Papaya – ripening variants Papaya Mango ?	Hawaii, Paull QDPI, Hofman CSIRO, Darwin MARDI
2. Tissue culture	?	MARDI
3. Transformation/ regeneration	Mango Papaya Citrus	Mexico Hawaii, Paull CSIRO, Brady
4. Molecular markers – RAPD – Targetted		
5. Protein isolation – Antisera – Sequence	Polygalacturonase PME Xylanase – papaya	Thailand, Porntip Silpakorn Hawaii, Paull
6. Gene isolation	ACC synthase – papaya β -1,4-glucanase – papaya	Hawaii, Stiles MARDI, Lam
7. Gene expression		

Trade and Marketing

Conveners: David Minnis and Godfrey Lubulwa

Marketing of Tropical Fruits

The market prospects for tropical fruits in Asia, Europe, and Japan were analysed in some detail.

In the short term, legislative changes in the EEC have implications for Asian countries supplying the European market. They reflect concerns about chemicals, consumer safety, and the environment that will, in the longer term, emerge more strongly in Asia.

Key issues subsequently raised during the workshop were:

1. World is operating in new era of free trade and opportunities are constantly changing.
2. Lack of market research in tropical fruits increases the risks of new ventures involving new crops.
3. R&D and technology transfer must be industry driven. At present there is a perception that it is researchers driving research.
4. Lack of funds for R&D was highlighted as an impediment. This is despite the fact that various governments in the region are making claims that exports are crucial for the development of their country.
5. There is technology available that is not being used because industry is unaware of it, or is unable to commercially adapt it. The technology transfer process needs to be strengthened.
6. Industry needs a vision for the future. It needs to keep setting new goals, with R&D supporting the vision.

Threats to Expanding Trade

1. The market share commanded by tropical fruits currently exported by various countries in Asia is at risk from South American competition.
2. Inferior and inadequate postharvest handling procedures are a constraint to expansion of trade.

Advanced postharvest technology is employed in South America, often directly transposed and adopted from the USA. If ASEAN countries are to compete with South American countries in the future they will need to have equivalent levels of postharvest technology.

3. Lack of markets in Asia due to limited access.
4. Improved sea freight technology is needed for perishable products such as tropical fruits. Without this technology export volume is restricted to air freight or short voyages.

Recommendations

1. That a multi-sectoral approach to R&D be adopted, so that research agencies together with the private sector are involved in jointly funded studies.
2. That a multidisciplinary approach to tropical fruits R&D be adopted.
3. That the commodity focus of R&D be on high value fruit and the marketing focus be on sea movement of tropical fruits.
4. That work be initiated to develop generic disinfestation procedures to meet the requirements of major fruit-importing countries.
5. That a mechanism for continuing and enhanced exchange of information on technical issues and market development be established.
6. That sustainability in R&D work be a matter of concern in developing countries. If trends in other countries are mirrored in Asia, the amount of government funds for horticultural research will decline. To offset this decline, the private sector will need to be financially involved and mechanisms for such involvement need to be developed.

Education and Training

Conveners: Alfred Ihekoronye and Colin Bunt

THE overall objective of this workshop was to identify means by which practical information on postharvest handling of tropical fruits could be disseminated more effectively to growers and packers.

A specific aim was to propose structural modules for training fruit growers and handlers in methods of handling fruit that will minimise quality losses.

Identification of Need

Dissemination of practical information is a challenge to the scientific community. There exists a wide range of information on various aspects of postharvest handling of many tropical fruits in the scientific literature but getting this information across, in language that is understandable to fruit growers, handlers, and traders is a task-specific problem. A mechanism is needed for doing this, perhaps through the establishment of linkages and networks among various countries. Participants in this workshop could act as primary vehicles for the implementation of such linkages.

Codes of Practice

Having identified the need for training and education for growers and postharvest fruit handlers, the next task was to determine the codes of practice needed in this area. Using the mango fruit as an example, a code of practice for its handling would need to cover:

- picking
- transportation from the orchard
- treatment and classification
- storage
- transportation to the market place.

Education and training would have to address issues on proper procedures that would minimise reduction in quality of the fruit at each link of the harvest–postharvest chain. To achieve this, training/education modules should comprise basic pamphlets, leaflets, and videos in simple language for the trainees.

Recommendation

It is recommended that a structural module for education and training of tropical fruit growers, handlers, and traders be implemented. Such a structure, when in place, will train tropical fruit producers on appropriate methods of handling their produce in order to minimise quality losses.

Research Network on Tropical Fruit Trees in Asia

Convener: Nazmul Haq

DR Nazmul Haq from Southampton University, U.K. presented for consideration by workshop participants details of an ambitious scheme to establish a comprehensive network covering all of Asia. The overall objective is to act as an umbrella framework for coordination of R&D activities in genetic resources, production, postharvest handling and processing, and socioeconomic and marketing aspects of promising tropical fruit trees in Asia. Initial support has been received from the Commonwealth Science Council and the International Centre for Unrecognised Crops. Bangladesh, India, Pakistan, Malaysia, and Sri Lanka had, Dr Haq said, expressed interest in the scheme.

Workshop participants were generally supportive but wondered where funding would come from and how the effort needed would be distributed among network participants. One delegate pointed out that there was no extension component in the plan, a serious omission. All agreed to fill in and return to Dr Haq as soon as possible an ICUC-IBPGR Questionnaire on Tropical Fruits.

Closing Remarks

It is a custom in Chiang Mai to set water containers beside the road so that travellers may refresh themselves. Since prehistoric times, fruits have also been wayside refreshers, plucked to be enjoyed along the way. As a consequence, the fruits themselves have been dispersed. The mango accompanied the spread of Buddhism throughout Asia, and later travelled further, with Indian, Arab, and European traders and adventurers.

Five hundred years ago, the determination and faith of Christopher Columbus in his journey to the Americas led to the flow of plants of commerce in trade from America to Europe and Asia. Where would Thai cuisine be without chilli and papaya, both originating in the Americas? Later there came pineapple, passionfruit, and avocado. In exchange, the fabled golden fruits — citrus, banana, and mango — were introduced into Europe, North America, and Africa.

There were yet other jewels: the durian, mangosteen, lychee, longan, and rambutan — the orphans — remained as seasonal pleasures for locals and intrepid travellers.

Legend says that, in centuries past, couriers raced across China to deliver fresh lychees to the Emperor. In the 19th century, Queen Victoria of England offered a prize to anyone who could deliver to her a fresh mangosteen. No-one claimed the prize. Nowadays, fresh tropical fruits, including mangosteen, can be transported by air around the world.

We have spent the last few days accepting the hospitality of Chiang Mai. We have enjoyed the fruits of research on tropical fruit — including the orphans, and the wisdom gained in their production, handling, and marketing. The time has come to return to our homes with new knowledge, contacts, and inspiration.

The success of this conference is due to the support of our sponsors, to the efforts of many staff and students of Chiang Mai University who attended to local arrangements, to help from many others in other agencies and, last but not least, to the paper presenters and participants who ensured a stimulating and enjoyable colloquium.

We thank you all.

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