COMMISSION FOR AGRICULTURAL COSTS AND PRICES

REPORT ON PRICE POLCY FOR COPRA FOR THE 2005 SEASON

In this report the Commission presents its views on price policy for Copra for the 2005 season. The Commission recommends that :

(i) the Minimum Support Prices (MSP) of milling copra and ball copra for the 2005 season, be fixed as follows:

	(Rs per quintal)
Milling Copra	**: Rs. 3570**
Ball Copra	**: Rs. 3820**

(Para 22)

(ii) ***government should take all necessary measures to announce MSP of Copra latest by beginning of January and avoid delay as in the past so that farmers should receive appropriate price signals in time;*** (Para 2)

(iii) ***coconut should be covered under National Agricultural Insurance Scheme without delay for providing relief to the millions of small and marginal coconut growers;*** (Para 7)

(iv) **i*n order to protect the coconut farmers, the request of the Government of Kerala and other states (if so submitted) regarding assistance for replacement of diseased plants by disease resistant varieties should be favourably considered by the Central Government;*** (Para 8)

(v) ***research efforts should be accelerated on developing high yielding and disease-resistant varieties and there should be much stronger coordination and linkage between research and extension;*** (Para 9)

(vi) ***there should be a liberal central assistance pattern for irrigation including community irrigation to enhance productivity and control the eriophyid mite;*** (Para 10)

(vii) ***CDB, CPCRI and the concerned states should closely monitor the implementation of the Technology Mission and remove the irritants and bottlenecks wherever necessary;*** (Para 11)

(viii) ***the Central and State Governments should play an active role in promoting the diversification of usage of coconut and its value added products by providing organisational, marketing and financial support and appropriate incentives in the form of soft loans, working capital and capital subsidy on the lines of what is being done for the food processing industry****;*

(Para 17)

(ix) ***government should set up a separate research institute on Coir Technology on the pattern of National Institute for Research on Jute and Allied Fibre Technology (NIRJAFT) to help in improving the quality of coir products, keeping in view the demand in national and international markets****;* (Para 18)

(x) ***adequate funds should be provided on liberal terms to the farmers and their organisations for processing and drying facilities for copra;*** and (Para 19)

(xi) ***states should exempt tax on copra procured under price support system and its by-products and the procurement should be undertaken during the peak arrival period, unless there are extra-ordinary and compelling reasons to extend it.***

(Para 20)

2. The Commission submitted its report on price policy for copra for the 2004 season on I November, 2003. Apart from a number of non-price recommendations, the Commission recommended that the minimum support price (MSP) for the fair average quality (FAQ) of milling copra be fixed at

Rs.3500 per quintal and of ball copra at Rs. 3750 per quintal. The Government announced the price policy for copra on 10 July, 2004, fixing the MSP at the same levels as recommended by the Commission. The Commission recommends that ***government should take all necessary measures to announce MSP of Copra latest by beginning of January and avoid delay as in the past so that farmers should receive appropriate price signals in time***. The MSPs fixed by the Government marked an increase of Rs. 180 per quintal for both milling and ball copra over their minimum support prices fixed for the previous year. Since the market prices during the 2004 season remained much higher than the MSPs in all the markets, the National Agricultural Cooperative Marketing Federation (NAFED) and its agencies were not required to intervene in the market to undertake support operations in major coconut producing states of the country. (Table 1)

3. The area under coconut cultivation has been showing a continuous expansion. Based on the moving average on triennium ending basis (TE), the area under this crop increased from 11.08 lakh hectares in TE 1982-83 to 15.14 lakh hectares in TE 1992-93 and 18.60 lakh hectares in TE 2002-03. Though there has been a continuous expansion in area, but the rate of growth decelerated from 3.44 per cent per annum during the period between 1982-83 to 1992-93 to 1.53 per cent during 1992-93 to 2002-03. The deceleration in the growth of area under this crop may be attributed to slowing down of expansion of area in almost all the states, except Karnataka and Maharashtra where the respective estimated growth rates of 4.21 and 9.87 per cent during 1992-93 to 2002-03 were higher than 2.85 per cent and -3.13 per cent recorded during 1982-83 to 1992-93. The area under coconut estimated at 18.67 lakh hectares in 2002-03 showed a decline of 1.16 per cent over 18.89 lakh hectares recorded in 2001-02. Among all the coconut growing States and Union Territories, four states accounting for 92 per cent of the total area in 2002-03 were Kerela (48.52%), Karnataka (19.82%), Tamil Nadu (18.53%) and Andhra Pradesh (5.62%). Since 2001-02, the area under coconut remained more or less the same in Karnataka, while it increased by 1000 and 10,000 hectares in Andhra Pradesh and Tamil Nadu respectively and fell down substantially by 34,000

hectares in Kerala. The decline in area in Kerala may be attributed to uprooting of senile, old, diseased and uneconomic trees. (Table 11)

4. The production of coconut has shown an upward trend over time. It increased from 5883 million nuts in triennium ending1982-83(TE) to 10350 million nuts in 192-93 (TE) and 12486 million nuts in 2002-03(TE). However, the annual growth rate of coconut production declined from 6.59 per cent estimated during the period between 1982-83 and 1992-93 to 0.40 per cent during 1992-93 to 2002-03. The decline in growth could be observed in all the states of India except A&N Island, Lakshadweep and Goa. There was a drastic fall in annual growth rate of production in Andhra Pradesh, Tamil Nadu and Kerala from 23.5 per cent, 8.38 per cent and 5.32 per cent during 1982-83 to 1992-93 to 0.82 per cent, -0.92 per cent and 0.52 per cent respectively during 1992-93 to 2002-03. These three states accounted for 78 per cent of the total production of coconut during the year 2002-03. The production of coconut after reaching the peak level of 14925 million nuts in 1998-99 dived to 11986 million nuts in 2002-03 and showed a decline of 6.3 per cent over the production of 12792 million nuts achieved in 2001-02. The main factors responsible for fall in coconut production are: shrinkage of area under coconut cultivation, debilitating root wilt disease, attack of mite, severe effects of weather and intermittent droughts as more than 80% of crop is still under rain-fed conditions and low investment capabilities of coconut farmers to develop necessary irrigation infrastructure due to small and fragmented holdings in Kerala. (Table 11)

5. The coconut yield after reaching the peak level of 7821 nuts per hectare in 1998-99 fell substantially to 6422 nuts in 2002-03 and showed a decline of 5.2 per cent over the yield of 6772 nuts in 2001-02. The coconut yield during the period 1992-93 to 2002-03 showed a negative growth of -2.61 per cent and -4.09 per cent per annum in high yield and high acreage states of Andhra Pradesh and Tamil Nadu, negative growth of -5.34 per cent and – 0.46 per cent in high yield and low acreage states of Maharashtra and West Bengal and 1.89 per cent and 0.19 per cent in high acreage and low yield states of Karnataka and Kerala, as against the respective annual growth rates of 18.17 per cent, 2.92 per cent, 8.80 per cent, 2.31 per cent, -0.09 per cent and 2.15 per cent in these

states during 1982-83 to 1992-93. The net result of diverging trends in the growth of yield in different states has been that the all India annual growth has decelerated significantly to -1.11 per cent during 1992-93 to 2002-03 from 3.05 per cent growth recorded during 1982-83 to 1992-93. The decline in yield may be attributed to lower production due to prevalence of diseases like bud rot, leaf rot, stem bleeding and debilitating root (wilt) diseases. In fact, the high incidence of root wilt disease in Kerala pulled down the average productivity of coconut to less than 25 nuts per tree per year, while the wind-borne pest, the eriophyid mite further aggravated the problem by causing a shrinkage of nuts. Also a large number of senil and uneconomic palms, small and fragmented holdings, lack of irrigation, and slackening of the development efforts acted as constraints to high yields. (Table 11)

6. Coconut palm is affected by a number of diseases including wilt-root, leaf-rot, bud-rot, stem bleeding caused by fungi. Some of these are lethal, while others reduce the vigor of the palms causing yield loss. Important diseases prevalent in different states and common pests affecting coconut in India are: Root-wilt disease, which has spread to eight out of fourteen districts of Kerala and is affecting 245 lakh palms in 4.10 lakh hectares in the state. The estimated loss of nuts in the state is 968 million. The estimated loss of husk per nut was 25.8 per cent while that of copra and coconut oil per unit was 9.1 per cent and 11.3 per cent respectively. Nearly 60 per cent of the leaves were found damaged due to this disease. The incidence of this in Alappuzha, Pathanamthitta, Kottayam, Kollam and Errnakulam is 48.03 per cent, 37.80 per cent, 38.5 per cent, 26.0 per cent and 33.0 per cent respectively. The high incidence of disease in these districts reduced annual productivity to less than 25 nuts per tree. Besides, 16 to 40 per cent of the palms in root (wilt) affected area developed leaf- rot, a fungal disease. The wind-born pest, the eriophyid mite has further aggravated the problem. The incidence of the mite is 55 per cent in Kerala, 37 per cent in Karnataka, 44 per cent in Tamil Nadu and 22 per cent in Pondicherry. This pest feeds on the soft tissues of the nuts in the early stages of their development. Continuous feeding on the soft tissues of the nut causes emergence of brownish patches on the surface of the nuts, which subsequently lead to warting. Because of the damage to the other tissues of the nuts, the

growth of the nuts is prevented and the normal size of the nuts, shell and kernel is reduced drastically. The undersized nuts resulting from the shrinkage of size are not accepted by the traders and the extent of rejection at the farm gate is estimated at 50 per cent. The shrinkage and deformity of the husk due to mite attack makes the de-husking process laborious and costly, besides affecting the coir fibre yield and quality. The shortage of raw material viz. coir fibre from coconut husk would not only affect the coir industry but also the exports.

7. The Commission has been informed about the various steps taken to control various diseases. These include spraying and root feeding control method in the form of release of fungal pathogen, demonstrating disease management practices in the plot of 150 hectares each in the southern district of Kerala and provision of Rs 250 as compensation for cutting and removing the diseased plants. The root wilt disease has no definite control measures. However the bearing palms which are in the initial to middle stage of disease respond well to management practices. The CPCRI has evolved certain management practices. The Coconut Development Board has also been implementing a scheme for Integrated Farming in coconut holding under Technology Mission on Coconut by providing assistance for adopting disease management practices. It is also supplying quality seedling wherever planting density permit and is also carrying out demonstration on the package of the management practices for the management of pests and disease. The remedial measure is to either apply monocrotophos through root-feeding or to spray affected branches at fortnightly intervals with decofol or an emulsion of neem oil with garlic in soap. However, the root feeding has limited applicability in areas affected by the root wilt disease, and for spraying to be effective, this has to be done at least three times consecutively by all the affected farmers. In view of the losses suffered by the farmers due to vagaries of weather and pest and diseases, the Commission reiterates its earlier recommendation that ***coconut should be covered under National Agricultural Insurance Scheme without delay for providing relief to the millions of small and marginal coconut growers.***

8. In States like Kerala, coconut farming is a way of life, particularly for small and marginal farmers. The debilitating root (wilt) disease that had set in Kerala

more than a century back has slowly spread to 8 out of 14 districts. The disease has assumed alarming proportions in five districts where only option is to cut and remove all the seriously diseased trees and replant disease tolerant coconut seedlings in a phased manner. The cost involved is beyond the capacity of the state government. The Commission recommends that ***in order to protect the coconut farmers, the request of the Government of Kerala and other states (if so submitted) regarding assistance for replacement of diseased plants by disease resistant varieties should be favourably considered by the Central Government***.

9. Research institutions are no doubt engaged in varietal development and pests/disease control measures but the results achieved so far do not commensurate with the magnitude of the problem. Whatever results have been achieved in research, have not been fully adopted by the farmers. The Commission recommends that ***research efforts should be accelerated on developing high yielding and disease-resistant varieties and there should be much stronger coordination and linkage between research and extension***.

10. It is a recognized fact that coconut responds well to irrigation, especially micro irrigation coupled with appropriate doses of fertilizers and nutrients application. In addition, the incidence of the eriophyid mite is less in irrigated area as compared to non-irrigated area. This vital ingredient, 'irrigation', however, is lacking in coconut plantations in India, particularly in Kerala, where 83 per cent of area is rain-fed due to non availability of adequate resources required for building the necessary infrastructure for irrigation. The Commission recommends ***there should be a liberal central assistance pattern for irrigation including community irrigation to enhance productivity and control the eriophyid mite.***

11. The main emphasis of "Integrated Development of Coconut Industry in India" remained on enhancing production through expansion of area under coconut, production and distribution of quality seedlings, management of root-wilt disease, dissemination of information, etc. However, limited efforts were made

towards market promotion and diversification of coconut products in a strategic manner. To establish convergence and synergy among numerous ongoing governmental programmes in the field of coconut development in order to bring in horizontal and vertical integration of these programmes, the Technology Mission on Coconut was launched in 2001-02. The Mission besides addressing the missing links in the existing programmes intends to ensure adequate, appropriate, timely and concurrent attention to all the links in the production, post harvest and consumption chain as well as to maximize economic, ecological and social benefits from the existing investment and infrastructure created for coconut development. To achieve these objectives, the Mission gives focussed attention to: product diversification and by-product utilisation, marketing of coconut and its products through popularizing the use of packed tender nut water & other convenient foods by creating awareness on the health aspects on the coconut products, enhance market potential for coconut product both in the domestic and international market and improve productivity through management of pests and diseases**.** The measures taken to contain spread of wilt-root diseases within the endemic area and prevent their spread are: removal of wilt-root disease plants and substitute planting of the removed palms, promotion of better management of pesticides and better management practices for improving the health of existing palms; development of technology; promotion of market research to create wide market for various coconut products. The impact of implementation of Technology Mission on Coconut could be fully analysed only after 3 years of implementation. The Commission recommends that ***CDB, CPCRI and the concerned states should closely monitor the implementation of the Technology Mission and remove the irritants and bottlenecks wherever necessary*****.**

12. The prices of coconut ruled above last year's level. The index number of wholesale prices of coconut, (1993-94=100) showed mixed trend. The WPI recorded at 146.4 in January and May, the peak months and 148.6 in July 2004 was higher by 9 per cent, 10.4 per cent and 3.9 per cent than the corresponding months of 2003. Month-end wholesale prices of coconut were quoted at Rs.4700-4950 during peak period (Jan-May) and Rs 4750 in August at Kozhikode and Rs 5700-6000 in peak and Rs 7050 in August at Alappuzha in

Kerala; Rs 3800-5000 in peak and Rs 5300 in August at Arsikere in Karnataka were not only higher than the MSP declared for the year but also much higher than the prices of the corresponding period of last year. The increase in coconut prices has been attributed to short supply of coconut due to shrinkage in area, production and productivity and higher demand for the product. (Tables 5 & 6)

13. The prices of coconut oil during 2004 also ruled above last year's level. The WPI fluctuated between 166.3 and 175.7 during January-July 2004. The average WPI of coconut oil (1993-94=100) estimated at 168.2 and 174.6 in the peak season of coconut and 175.7 in July 2004 were higher by 21.1 per cent, 28.8 per cent and 23.8 per cent than the corresponding months of 2003. The month-end whole sale price of coconut oil have been reported in the range of Rs 5900-6800 per quintal during peak period (Jan-May) and Rs 6975 in August at Kozhikode, Rs 5800-6500 during peak and 6950 in August at Alappuzha and Rs 5800-6200 during peak and Rs 7025 in August in Ernakulam in Kerala, Rs 7333-8473 during peak and Rs 7900 in July at Rajahmundry in Andhra Pradesh, Rs 7733-8053 in peak and Rs 8640 in Chennai in Tamil Nadu and Rs 7800-8000 in peak and Rs 8000 in August at Kolkata in West Bengal. In view of an almost axiomatic relationship between prices of copra and coconut oil, the rise in prices of copra due to shortage of supply resulting from a fall in area, production and productivity during 2002-03 caused a rise in prices of coconut oil. (Tables 4 & 10)

14. The import of coconut oil despite very low international price (RS 30447 per metric ton) as compared to higher domestic price of Rs 81249 per metric ton in Tamil Nadu and Rs 63906 in Kerala, remained negligible because apart from high tariff of 85 per cent. Coconut oil can be imported through an authorised state trading organization such as State Trading Corporation or Hindustan Vegetable Oil Corporation. As compared to the year 2003, the average international prices of coconut showing an increase of 40 per cent in 2004, the increase observed in domestic prices was only 8 per cent in Kerala and 6.5 per cent in Tamil Nadu. As a consequence, the import of coconut fell from 5,600MT in 2003 to only 600 MT in 2004.

15. In addition, total import of edible oil during November 2003 to July 2004 estimated at 26.96 lakh MT showed a decline of 30 per cent over the import of 38.63 lakh MT during the corresponding period of last year. During the period under study, barring an increase in import of 3.92 lakh MT of Refined Bleached & Deodorised (RBD) palmolein, the import of all other oils including crude palm oil and crude palm kernal oil, falling under the category of edible oils, declined when compared to the import of these made during the last year. The palm oil and palm kernel oil are the two primary substitutes of domestic coconut oil. The former competes with coconut oil in the edible oil segment and the latter in non-edible segments of consumption base. The average price of US$490 per MT for palm oil in 2004 showed an increase of 12 per cent over the price of US$438 per metric ton in 2003. Though the import of palm oil has increased, it is unlikely to substitute the consumption of coconut oil in terms of its taste and almost price inelastic demand of coconut oil for Keralites. While the duty rate remaining same at 65 per cent for crude palm oil, it increased from 70 to 75 per cent for RBD palm oil in 2004. The rise of 5 per cent in import duty might cause some decline in import of refined palm oil and increase in crude palm oil import. (Table 12)

16. Future trading in coconut oil and copra started under the First Commodities Exchange, original exchange in Kochin in October, 2001 and June 2002 respectively. National Multi-Commodity Exchange, Ahmedabad though started future trading in coconut oil during their initial months of operations. However, there is not much activity in copra and coconut oil in this exchange. Other commodities exchanges such as MCX and NCDX are yet to start for copra and coconut oil. The future market works as a price discovering mechanism by giving an idea about the price of any particular commodity in the coming months. The evolution of the price idea not only reduces the risk factors to a certain extent but also helps in taking a more competitive management decision. The trading in exchange is conducting simultaneously for three contracts only. These contracts were required to commence three months in advance in 2003-04 but the period of hedging is four months in 2003-04. The traders who trade in the exchange are bound to pay margin and special margin money as fixed from time to time by the Forward Market Commission (FMC). Further, the members have to deposit a security with the exchange. The limit on open position is fixed with

the sanction of FMC. At present the open position for every member is limited to 100 tonnes for contract. Trade in exchange is carried on line. The trading in coconut and copra is two tonnes and multiple thereof. Minimum price movement for coconut oil and copra is Rs.5 per 100 Kg. The maximum price fluctuation for a day is Rs.100 and as per the bye laws of the Exchange delivery can be made any where in India. The future trading is expected to give farmers the option to sell their product at favourable price three months in advance, enabling them to cover their risk of lesser prices due to increased production or other market patterns in the season if they hedge four months in advance. The stockists also have the facility of hedging. They can hedge their stocks against future decrease in value of their stocks. Traders help the prices to rule at a favourable price. Speculators help the process by providing liquidity in the market. However, it is felt that unless farmers integration with future trading is strengthened, the accrual of benefit through price hedging will be limited.

17. Coconut has huge potential for diversification and value addition. The major diversified coconut products are coconut milk/syrup, powder, cream, coconut spread, coconut jam, desiccated coconut, tender nut water, coconut water concentrate (syrup) as beverage on dilution as coconut lemonade/pineapple/mango, coconut chips, coconut-jaggery, coconut vinegar, nata-de-coco, coconut hair oil, coconut fibre products, coir, coir pith, coir based products including coir mats and carpets, coir asbestos, and organic manure, shell products, various handicrafts, furniture, doors and panels made from coconut wood and use of coconut oil in the automobile industry. During the next 5 to 10 years, the demand for desiccated coconut, fresh coconut, coconut milk, is likely to increase by 9 per cent, 5 per cent and 45 per cent respectively. The Commission recommends that ***the Central and State Governments should play an active role in promoting the diversification of usage of coconut and its value added products by providing organisational, marketing and financial support and appropriate incentives in the form of soft loans, working capital and capital subsidy on the lines of what is being done for the food processing industry*.**

18. Besides, there is huge potential for export of coir products, which are the by-product of coconut. The total export of fibre products by India increased from 54,571 MT in 2000 to 61,962 MT in 2002.Compared to this, Sri Lanka's export of items declined substantially from 127,988 MT in 2000 to 66,892 MT in 2002. During the last five years, the demand for coir yarn, coir matting and coir mats from India was 14,064, 7,603 and 23,753 MT respectively. The European countries, accounted for 72 per cent, 54 per cent and 47 per cent of these three products, followed by USA accounting for 14 per cent, 15 per cent and 39 per cent and Asian countries importing 14 per cent, 31 per cent and 14 per cent of these three items respectively. During the next 5 to 10 years, the demand for coir products is expected to rise by 8 fold and for coir dust by 100 per cent. In view of India's substantial export potential of these products, there is, however, a need to strengthen the quality of these products. The Commission recommends that ***government should set up a separate research institute on Coir Technology on the pattern of National Institute for Research on Jute and Allied Fibre Technology (NIRJAFT) to help in improving the quality of coir products, keeping in view the demand in national and international markets*.**

19. There have been demands from major states like Kerala for fixing the price for raw coconut as only less than 10 per cent of the farmers convert coconut into copra. While this may not be feasible, given the extremely perishable nature of raw coconut there is a need to provide support to the farmers and there organisations for installing processing and drying facilities. The Commission recommends that ***adequate funds should be provided on liberal terms to the farmers and their organisations for processing and drying facilities for copra***.

20. Safeguarding the interests of the farmers is no doubt paramount but at the same time, the financial viability of procurement agencies in this case NAFED has to be ensured as far as possible. Commission sees merit in the submission of the NAFED for tax exemption by states on Copra procured under price support system including sale of by-products like coconut oil/cake as well as limiting the procurement during the peak arrival period. The Commission recommends that

states should exempt tax on copra procured under price support system and its by-products and the procurement should be undertaken during the peak arrival period, unless there are extra-ordinary and compelling reasons to extend it.

21. As has been mentioned in the earlier Reports of the Commission for the Price Policy of Copra, cost estimates for the crop are yet not available under the Comprehensive Scheme. As a result the Commission relies on the cost estimates provided by the state governments and also Coconut Development Board (CDB) and NAFED. The Commission recommends that coconut should be covered under CS without any further delay. The cost estimates for Copra for 2005 season have been received from the states of Andaman & Nicobar Islands, Kerala, Karnataka and Coconut Development Board. The state government of Andaman has given the cost of Rs 6.00 per nut which includes drying cost also which is much on higher side. Similarly Kerala has given a cost of Rs. 5.67 per nut which is also on the higher side as compared to Rs. 4.25 per nut given by CDB based on a study exclusively conducted to study the cost of production of coconut in the state of Kerala. Karnataka has given an estimate of Rs. 5.79 per nut which is inclusive of 20 per cent profit to the farmer. Excluding this profit, the estimate works out to Rs. 4.83 per nut. Most of the state governments in their routine interaction with the Commission have mentioned that there is no systematic survey/ methodology to generate the cost estimates of coconut in the states. CDB has given an estimate of cost of production at Rs 4.25 per nut. This estimate is the same as that for the previous year and is based on a pilot study on Cost of Production of Coconut in Kerala primarily undertaken to generate reliable cost of production estimates for coconut in the absence of CS estimates for the crop. Given the cost variations from year to year this may require a more detailed analysis in future. The study was carried out in three districts of Kerala namely, Kozhikode, Ernakulam and Thiruvananthapuram. This cost of Rs 4.25 per nut has been projected to Rs 4.50 for the year 2005. Considering one quintal of copra is produced from 725 nuts, the cost of one quintal copra works out to Rs 3476 (4.50x725+213=3476) where Rs 213 is the cost of converting coconut into one quintal copra as reported by CDB. The Government of Karnataka has given the cost of production of one nut at Rs 4.83. The corresponding cost of one

quintal of copra works out to Rs 3715. Based on these two estimates, the weighted average cost of one quintal of copra works out to Rs 3500 per quintal. However, if the estimate of the Government of Kerala at Rs. 5.67 per nut together with that of Karnataka is considered the weighted average cost of production of one quintal of copra works out to Rs. 4263 per quintal.

22. Based on the above discussion, the Commission recommends that ***the Minimum Support Price (MSP) of milling copra and ball copra for the 2005 season, be fixed as follows*:**

(Rs. Per quintal)

Milling copra	**:**	**Rs. 3570**
Ball copra	**:**	**Rs. 3820**

Sd/-

(T. HAQUE)
CHAIRMAN

Sd/-

(RAMADHAR)
MEMBER

Sd/-

(RAJIV MEHTA)
MEMBER SECRETARY

SEPTEMBER 20, 2004