# ANNEX A.

# TABLES AND FIGURES FOR SECTIONS 2 THROUGH 6

**TABLE 2.1**

**STUDY HOUSEHOLDS AS PERCENTAGE OF ALL HOUSEHOLDS RECORDING DURING VILLAGE LISTINGS**

| | TOTAL NUMBER OF HHS LISTED | TOTAL NUMBER OF HHS WITH CHILDREN <28 MONTHS OF AGE | NUMBER OF HHS COMPLETING BASELINE STUDY (JULY 2003) | NUMBER OF HHS COMPLETING STUDY (MARCH 2005) | TOTAL NUMBER OF ALDEIAS | FINAL SAMPLE % OF HHS WITH CHILDREN <28 MONTHS | PERCENT ALL LISTED HHS WITH CHILDREN <28 MONTHS OF AGE | FINAL SAMPLE AS % OF ALL HHS |
|---|---|---|---|---|---|---|---|---|
| **DISTRICT** | | | | | | | | |
| MOPEIA (INTERVENTION) | 1733 | 666 | 285 | 252 | 22 | 37.8 | 38.4 | 14.5 |
| NAMACURRA (INTERVENTION) | 2556 | 634 | 275 | 246 | 18 | 38.8 | 24.8 | 9.6 |
| NICOADALA (CONTROL) | 1468 | 380 | 267 | 243 | 10 | 64.0 | 25.9 | 16.6 |
| | | | | | | | | |
| **STUDY AREA** | | | | | | | | |
| INTERVENTION | 4289 | 1300 | 560 | 498 | 40 | 38.3 | 30.3 | 11.6 |
| CONTROL | 1468 | 380 | 267 | 243 | 10 | 64.0 | 25.9 | 16.6 |
| | | | | | | | | |
| **ENTIRE DOMAIN** | 5757 | 1680 | 827 | 741 | 50 | 44.1 | 29.2 | 12.9 |

## TABLE 3.1 ORANGE-FLESHED SWEETPOTATO (OFSP) PRODUCTION IN 53 PROJECT FARMERS'GROUPS IN 2003 AND 2004

| | YEAR OF PRODUCTION | |
|---|---|---|
| | 2003 | 2004 |
| No. Receiving or Retaining Vines | 548 | 993 |
| No. Producing BCRSP | 419 | 815 |
| % Producing BCRSP | 76% | 88% |
| Total Area Under Production (ha) | 1.4 | 30.1 |
| Average Plot Size (Sq. meters) | 33 | 369 |
| % Growing 500 square meters or greater | 0 | 35% |

Note: farmers' groups consist of the 498 intervention households enrolled in the study, plus other households who do not necessarily have young children.

## TABLE 3.2 PRODUCTION OF SWEETPOTATO OF ANY TYPE AND PERCENT OF TOTAL PRODUCTION FROM PURE ORANGE-FLESHED PLOTS IN 2004 BY AREA

| | | Count | Mean | Std Deviation | Percentile 25 | Median | Percentile 75 |
|---|---|---|---|---|---|---|---|
| INTERVENTION | QUANTITY (KGS) PRODUCED OF ALL TYPES OF SWEETPOTATO IN 2004 | 457 | 187.0 | 183.5 | 50.9 | 127.1 | 261.0 |
| | PERCENT OF SWEETPOTATO PRODUCED THAT WAS ORANGE-FLESHED | 457 | 68 | 26 | 50 | 71 | 90 |
| CONTROL | QUANTITY (KGS) PRODUCED OF ALL TYPES OF SWEETPOTATO IN 2004 | 134 | 113.7 | 160.2 | 20.3 | 63.5 | 126.1 |
| | PERCENT OF SWEETPOTATO PRODUCED THAT WAS ORANGE-FLESHED | 134 | 12 | 25 | 0 | 0 | 12 |

## TABLE 3.3 REASONS WHY INTERVENTION HOUSEHOLDS WHO USED TO GROW WHITE-FLESHED SWEETPOTATOES ARE NO LONGER GROWING THEM BY DISTRICT

| | AREA | | DISTRICT | | | |
|---|---|---|---|---|---|---|
| | INTERVENTION | | MOPEIA | | NAMACURRA | |
| | N | % | N | % | N | % |
| WANTED TO PRODUCE OFSP TO HAVE A LARGER MARKET - BETTER | 6 | 6.5 | 4 | 12.9 | 2 | 3.3 |
| BECAUSE THE NEW VARIETY IS VERY TASTY | 11 | 12.0 | 2 | 6.5 | 9 | 14.8 |
| DIDN'T HAVE TIME TO CULTIVATE ANOTHER TYPE | 12 | 13.0 | 4 | 12.9 | 8 | 13.1 |
| IT'S EASY TO GROW BECAUSE PRODUCES A LOT | 5 | 5.4 | | | 5 | 8.2 |
| PREFERRED TO PRODUCE OFSP BECAUSE CONTAINS VIT. A | 16 | 17.4 | 6 | 19.4 | 10 | 16.4 |
| LACK OF VINES | 35 | 38.0 | 9 | 29.0 | 26 | 42.6 |
| ONLY WANTED TO PLANT THE NEW VARIETY | 7 | 7.6 | 6 | 19.4 | 1 | 1.6 |
| TOTAL | 92 | 100.0 | 31 | 100.0 | 61 | 100.0 |

WFSP: WHITE-FLESHED SWEETPOTATO; OFSP: ORANGE-FLESHED SWEETPOTATO

## TABLE 3.4 ESTIMATED YIELD (TONS/HA) OF SWEETPOTATO IN 2004 IN INTERVENTION HOUSEHOLDS BY DISTRICT

| | | N | MEAN | STD DEV | MEDIAN | 25TH PERCENTILE | 75TH PERCENTILE |
|---|---|---|---|---|---|---|---|
| ALL HOUSEHOLDS | | 400 | 6.8 | 6.4 | 4.9 | 2.2 | 8.4 |
| DISTRICT | MOPEIA | 226 | 7.1 | 6.4 | 5.3 | 2.6 | 8.7 |
| | NAMACURRA | 174 | 6.5 | 6.5 | 4.5 | 1.6 | 8.3 |

NOTE: ESTIMATED FROM RECALL PRODUCTION DATA AND AREAS MEASURED BY EXTENSIONISTS.

## TABLE 3.5 TYPE OF SWEETPOTATO THAT PRODUCED THE MOST IN 2004 BY DISTRICT

| | AREA | | DISTRICT | | | |
|---|---|---|---|---|---|---|
| | INTERVENTION | | MOPEIA | | NAMACURRA | |
| | N | % | N | % | N | % |
| DIDN'T PLANT AN INDIVIDUAL PLOT THAT SEASON | 18 | 4.5 | 6 | 2.7 | 12 | 6.7 |
| ORANGE-FLESH SWEET POTATO | 331 | 83.4 | 189 | 86.3 | 142 | 79.8 |
| LOCAL SWEET POTATO | 37 | 9.3 | 14 | 6.4 | 23 | 12.9 |
| PRODUCTION WAS THE SAME | 11 | 2.8 | 10 | 4.6 | 1 | .6 |

NOTE: ONLY INCLUDED INTERVENTION HOUSEHOLDS THAT PRODUCED BOTH ORANGE & WHITE-FLESHED SWEETPOTATO IN 2004.

TABLE 3.6 ROOT AND FOLIAGE YIELDS FROM CROP CUTS FROM FARMER'S PLOTS OF ORANGE & WHITE-FLESHED SWEETPOTATO VARIETIES DURING THE SECOND GROWING SEASON IN 2004

| **VARIETY** | # PLOTS WEIGHED | ROOT YIELD (TONS/HA) | % ROOTS 1ST QUALITY | FOLIAGE YIELD (TONS/HA) |
|---|---|---|---|---|
| **ORANGE-FLESHED** | | | | |
| JAPON | 6 | 8.7 ± 6.8 | 57 | 10.3 ± 4.6 |
| RESISTO | 19 | 7.9 ± 3.3 | 52 | 8.9 ± 7.3 |
| CN-1448-49 | 16 | 7.2 ± 2.9 | 58 | 8.0 ± 4.6 |
| CORDNER | 4 | 7.1 ± 2.1 | 55 | 5.2 ± 5.0 |
| LO-323 | 2 | 5.5 ± 0.8 | 27 | 15.2 ± 3.7 |
| JONATHAN | 5 | 4.7 ± 2.4 | 34 | 13.5 ± 7.5 |
| OVERALL | 52 | 7.3 ± 3.6 | 52 | 9.2 ± 6.2 |
| **WHITE-FLESHED** | | | | |
| NIMELEMEDE | 4 | 10.2 ± 3.8 | 47 | 2.8 ± 0.8 |
| CUMPARULE | 7 | 9.6 ± 3.7 | 44 | 4.9 ± 2.3 |
| CANASSUMANA | 5 | 9.2 ± 1.5 | 57 | 6.1 ± 1.3 |
| MWANAGA MALA | 5 | 7.6 ± 0.7 | 52 | 8.0 ± 2.4 |
| COCORA | 11 | 6.7 ± 2.6 | 44 | 7.3 ± 5.0 |
| OVERALL | 32 | 8.3 ± 2.9 | 47 | 6.1 ± 3.6 |

Note: 1st quality roots are defined as being whole roots (no cuts) at least 200 gms in size, with no signs of weevil attack.

## TABLE 3.7 PREFERENCE AMONG DISTRIBUTED ORANGE-FLESH SWEETPOTATO VARIETIES BY DISTRICT

| | AREA | | DISTRICT | | | |
|---|---|---|---|---|---|---|
| | INTERVENTION | | MOPEIA | | NAMACURRA | |
| | N | % | N | % | N | % |
| NO PREFERENCE | 74 | 17.3 | 35 | 15.2 | 39 | 19.7 |
| KANDEE | 21 | 4.9 | 2 | .9 | 19 | 9.6 |
| JAPON | 15 | 3.5 | 7 | 3.0 | 8 | 4.0 |
| LO | 8 | 1.9 | 5 | 2.2 | 3 | 1.5 |
| TAIMUNG 64 | 3 | .7 | 2 | .9 | 1 | .5 |
| JONATHAN | 28 | 6.5 | 12 | 5.2 | 16 | 8.1 |
| CN-1448 | 2 | .5 | | | 2 | 1.0 |
| RESISTO | 273 | 63.8 | 165 | 71.7 | 108 | 54.5 |
| CAROMEX | 1 | .2 | 1 | .4 | | |
| CORDER | 1 | .2 | | | 1 | .5 |
| OTHER, SPECIFY | 2 | .5 | 1 | .4 | 1 | .5 |

ONLY INCLUDED INTERVENTION HOUSEHOLDS PRODUCING SWEETPOTATO IN 2004.

## TABLE 3.8 REASONS FOR PREFERENCE FOR EACH ORANGE-FLESH SWEETPOTATO VARIETY

| | JAPON | | LO | | JONATHAN | | RESISTO | |
|---|---|---|---|---|---|---|---|---|
| | Count | Col % | Count | Col % | Count | Col % | Count | Col % |
| FOR BEING VERY TASTY | 9 | 60.0% | 4 | 50.0% | 10 | 35.7% | 110 | 40.4% |
| PRODUCES WELL AND QUICKLY | 1 | 6.7% | | | 1 | 3.6% | 5 | 1.8% |
| IS FLOURY | 1 | 6.7% | | | | | 5 | 1.8% |
| IS VERY SWEET | 1 | 6.7% | 2 | 25.0% | 5 | 17.9% | 21 | 7.7% |
| PRODUCES A LOT AND IS VERY TASTY | 1 | 6.7% | | | 6 | 21.4% | 41 | 15.1% |
| PRODUCES A LOT | 1 | 6.7% | 2 | 25.0% | 4 | 14.3% | 41 | 15.1% |
| HAS VITAMINS AND IS TASTY | 1 | 6.7% | | | | | 29 | 10.7% |
| RESISTANT TO THE SUN | | | | | 1 | 3.6% | 7 | 2.6% |
| IS RESISTANT AND HAS GOOD FLAVOUR | | | | | | | 1 | .4% |
| IS VERY GOOD AND GIVES STRENGTH | | | | | | | 2 | .7% |
| NOT DIFFICULT TO PLANT | | | | | | | | |
| BECAUSE IT HAS VITAMINS FOR THE CHILDREN | | | | | | | 5 | 1.8% |
| IT'S GOOD | | | | | 1 | 3.6% | 5 | 1.8% |

NOTE: ONLY INTERVENTION HOUSEHOLDS PRODUCING SWEETPOTATO IN 2004.

# TABLE 3.9 STAPLE FOOD CROPS WITH HIGHEST LEVEL OF PRODUCTION IN 2004 AS REPORTED BY STUDY HOUSEHOLDS BY AREA AND BY DISTRICT

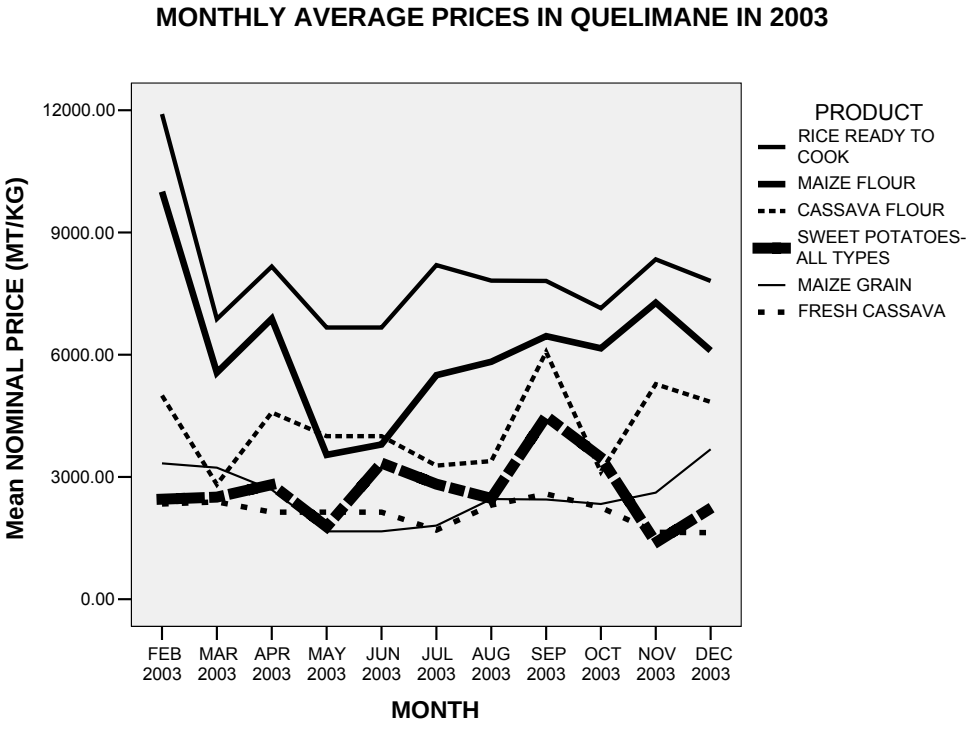
| | | ALL HOUSEHOLDS | AREA | | DISTRICT | | |
|---|---|---|---|---|---|---|---|
| | | | INTERVENTION | CONTROL | MOPEIA | NAMACURRA | NICOADALA |
| | | % | % | % | % | % | % |
| CROP WITH GREATEST QUANTITY PRODUCED IN 2004 | MAIZE | 5.3 | 5.4 | 5.0 | 10.3 | .4 | 5.0 |
| | RICE | 25.4 | 22.3 | 32.0 | 1.6 | 43.5 | 32.0 |
| | SORGHUM | .1 | | .4 | | | .4 |
| | GROUNDNUTS | .1 | .2 | | | .4 | |
| | BEANS | .3 | | .8 | | | .8 |
| | CASSAVA | 63.9 | 67.1 | 57.3 | 80.6 | 53.3 | 57.3 |
| | SWEETPOTATO | 4.9 | 5.0 | 4.6 | 7.5 | 2.4 | 4.6 |
| CROP WITH SECOND GREATEST QUANTITY PRODUCED IN 2004 | MAIZE | 13.0 | 14.4 | 9.8 | 23.0 | 5.4 | 9.8 |
| | RICE | 30.4 | 24.3 | 44.4 | 23.0 | 25.6 | 44.4 |
| | SORGHUM | .1 | | .5 | | | .5 |
| | GROUNDNUTS | 1.7 | 2.2 | .5 | | 4.5 | .5 |
| | BEANS | 6.2 | 5.7 | 7.5 | 3.2 | 8.3 | 7.5 |
| | CASSAVA | 23.4 | 26.5 | 16.4 | 13.1 | 40.5 | 16.4 |
| | SWEETPOTATO | 25.1 | 26.9 | 21.0 | 37.7 | 15.7 | 21.0 |

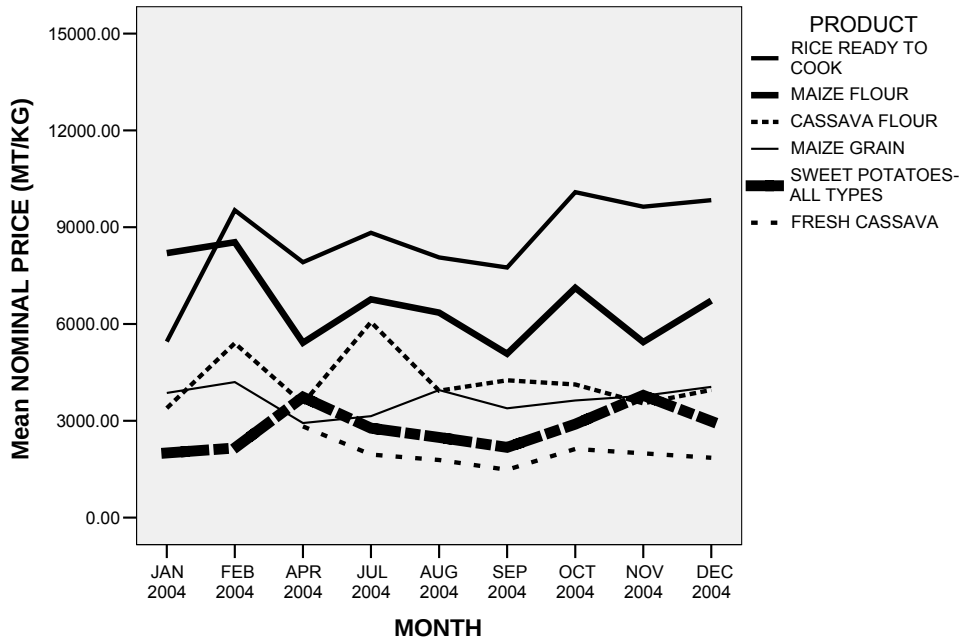
741 HOUSEHOLDS. 498 INTERVENTION, 243 CONTROL. DISTRICTS: MOPEIA 252 CASES, NAMACURRA 246 CASES AND NICOADALA 243 CASES

TABLE 3.10 PRODUCTION OF FOUR MAJOR STAPLE CROPS (KILOGRAMS) IN STUDY AREA IN 2004

| | | | Count | Mean | Std Deviation | Median | Percentile 25 | Percentile 75 |
|---|---|---|---|---|---|---|---|---|
| ALL HOUSEHOLDS | | QUANTITY PRODUCED (KG) OF FRESH CASSAVA | 741 | 1358 | 1482 | 975 | 512 | 1652 |
| | | EQUIVALENT QUANTITY (KG) OF DRIED CASSAVA | 741 | 339 | 370 | 244 | 128 | 413 |
| | | QUANTITY (KGS) OF ALL TYPES OF SWEETPOTATO | 741 | 136 | 175 | 73 | 13 | 191 |
| | | QUANTITY (KGS) MAIZE PRODUCED | 741 | 52 | 121 | 0 | 0 | 58 |
| | | QUANTITY (KGS) RICE PRODUCED | 741 | 153 | 180 | 87 | 39 | 193 |
| AREA | INTERVENTION | QUANTITY PRODUCED (KG) OF FRESH CASSAVA | 498 | 1634 | 1561 | 1157 | 729 | 1935 |
| | | EQUIVALENT QUANTITY (KG) OF DRIED CASSAVA | 498 | 409 | 390 | 289 | 182 | 484 |
| | | QUANTITY (KGS) OF ALL TYPES OF SWEETPOTATO | 498 | 172 | 183 | 109 | 40 | 244 |
| | | QUANTITY (KGS) MAIZE PRODUCED | 498 | 65 | 136 | 11 | 0 | 72 |
| | | QUANTITY (KGS) RICE PRODUCED | 498 | 151 | 173 | 96 | 39 | 193 |
| | CONTROL | QUANTITY PRODUCED (KG) OF FRESH CASSAVA | 243 | 792 | 1109 | 620 | 75 | 1024 |
| | | EQUIVALENT QUANTITY (KG) OF DRIED CASSAVA | 243 | 198 | 277 | 155 | 19 | 256 |
| | | QUANTITY (KGS) OF ALL TYPES OF SWEETPOTATO | 243 | 63 | 132 | 9 | 0 | 65 |
| | | QUANTITY (KGS) MAIZE PRODUCED | 243 | 26 | 73 | 0 | 0 | 29 |
| | | QUANTITY (KGS) RICE PRODUCED | 243 | 159 | 195 | 77 | 39 | 197 |

**FIGURE 3.1**


MONTHLY AVERAGE PRICES IN QUELIMANE IN 2003
Mean NOMINAL PRICE (MT/KG)
12000.00
9000.00
6000.00
3000.00
0.00
FEB 2003
MAR 2003
APR 2003
MAY 2003
JUN 2003
JUL 2003
AUG 2003
SEP 2003
OCT 2003
NOV 2003
DEC 2003
MONTH
PRODUCT
RICE READY TO COOK
MAIZE FLOUR
CASSAVA FLOUR
SWEET POTATOES-ALL TYPES
MAIZE GRAIN
FRESH CASSAVA


MONTHLY AVERAGE PRICES IN QUELIMANE IN 2004
Mean NOMINAL PRICE (MT/KG)
15000.00
12000.00
9000.00
6000.00
3000.00
0.00
JAN 2004
FEB 2004
APR 2004
JUL 2004
AUG 2004
SEP 2004
OCT 2004
NOV 2004
DEC 2004
MONTH
PRODUCT
RICE READY TO COOK
MAIZE FLOUR
CASSAVA FLOUR
MAIZE GRAIN
SWEET POTATOES-ALL TYPES
FRESH CASSAVA

## TABLE 3.11

**PRICE OF FOOD, ENERGY, AND RETINOL ACTIVITY EQUIVALENT ACROSS ALL MARKETS (METICAIS)**

| | | YEAR | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2003 | | | | 2004 | | | |
| | | Count | Mean | Minimum | Maximum | Count | Mean | Minimum | Maximum |
| YELLOW FLESH SWEETPOTATO | PRICE PER 100 GRAMS OF PRODUCT | 22 | 315 | 124 | 625 | 18 | 208 | 107 | 391 |
| | PRICE PER 100 KCAL OF ENERGY | 22 | 286 | 113 | 568 | 18 | 189 | 97 | 355 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 22 | 210 | 83 | 417 | 18 | 138 | 71 | 260 |
| ORANGE FLESH SWEETPOTATO | PRICE PER 100 GRAMS OF PRODUCT | 8 | 434 | 263 | 625 | 13 | 245 | 125 | 433 |
| | PRICE PER 100 KCAL OF ENERGY | 8 | 395 | 239 | 568 | 13 | 223 | 114 | 394 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 8 | 60 | 36 | 86 | 13 | 34 | 17 | 60 |
| CASSAVA LEAVES | PRICE PER 100 GRAMS OF PRODUCT | 11 | 530 | 179 | 1000 | 12 | 1211 | 125 | 2783 |
| | PRICE PER 100 KCAL OF ENERGY | 11 | 589 | 198 | 1111 | 12 | 1345 | 139 | 3092 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 11 | 459 | 155 | 867 | 12 | 1049 | 108 | 2412 |
| PUMPKIN LEAVES | PRICE PER 100 GRAMS OF PRODUCT | 13 | 775 | 167 | 2500 | 10 | 1393 | 308 | 2689 |
| | PRICE PER 100 KCAL OF ENERGY | 13 | 4077 | 878 | 13158 | 10 | 7330 | 1619 | 14154 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 13 | 799 | 172 | 2577 | 10 | 1436 | 317 | 2772 |
| KALE | PRICE PER 100 GRAMS OF PRODUCT | 19 | 1196 | 455 | 2679 | 12 | 905 | 200 | 2686 |
| | PRICE PER 100 KCAL OF ENERGY | 19 | 9199 | 3504 | 20604 | 12 | 6959 | 1538 | 20662 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 19 | 536 | 204 | 1201 | 12 | 406 | 90 | 1205 |
| PAPAYAS | PRICE PER 100 GRAMS OF PRODUCT | 15 | 393 | 100 | 704 | 21 | 433 | 45 | 1206 |
| | PRICE PER 100 KCAL OF ENERGY | 15 | 1007 | 256 | 1806 | 21 | 1110 | 117 | 3093 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 15 | 714 | 182 | 1281 | 21 | 787 | 83 | 2193 |
| PUMPKIN | PRICE PER 100 GRAMS OF PRODUCT | 20 | 350 | 61 | 741 | 24 | 277 | 48 | 931 |
| | PRICE PER 100 KCAL OF ENERGY | 20 | 1346 | 235 | 2849 | 24 | 1067 | 183 | 3582 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 20 | 95 | 17 | 201 | 24 | 75 | 13 | 252 |
| CARROTS | PRICE PER 100 GRAMS OF PRODUCT | 11 | 3665 | 1852 | 8712 | 14 | 4206 | 417 | 8750 |
| | PRICE PER 100 KCAL OF ENERGY | 11 | 8938 | 4518 | 21249 | 14 | 10259 | 1016 | 21341 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 11 | 609 | 308 | 1447 | 14 | 699 | 69 | 1453 |
| CHICKEN | PRICE PER 100 GRAMS OF PRODUCT | 38 | 3501 | 1453 | 5694 | 41 | 4306 | 2778 | 8333 |
| | PRICE PER 100 KCAL OF ENERGY | 38 | 1357 | 563 | 2207 | 41 | 1669 | 1077 | 3230 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 38 | 6733 | 2795 | 10951 | 41 | 8281 | 5342 | 16026 |
| LIVER (ANY ANIMAL) | PRICE PER 100 GRAMS OF PRODUCT | 7 | 2714 | 2500 | 3000 | 10 | 3882 | 806 | 6250 |
| | PRICE PER 100 KCAL OF ENERGY | 7 | 1953 | 1799 | 2158 | 10 | 2793 | 580 | 4496 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 7 | 37 | 34 | 41 | 10 | 53 | 11 | 85 |
| EGGS | PRICE PER 100 GRAMS OF PRODUCT | 22 | 4634 | 2000 | 7500 | 20 | 6611 | 4013 | 10000 |
| | PRICE PER 100 KCAL OF ENERGY | 22 | 3153 | 1361 | 5102 | 20 | 4497 | 2730 | 6803 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 22 | 3310 | 1429 | 5357 | 20 | 4722 | 2867 | 7143 |
| DRY MILK | PRICE PER 100 GRAMS OF PRODUCT | 28 | 19788 | 10000 | 25000 | 20 | 23215 | 18000 | 26667 |
| | PRICE PER 100 KCAL OF ENERGY | 28 | 3990 | 2016 | 5040 | 20 | 4680 | 3629 | 5376 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 28 | 7700 | 3891 | 9728 | 20 | 9033 | 7004 | 10376 |
| CONDENSED MILK | PRICE PER 100 GRAMS OF PRODUCT | 39 | 5295 | 4408 | 7357 | 58 | 5817 | 5038 | 7692 |
| | PRICE PER 100 KCAL OF ENERGY | 39 | 1650 | 1373 | 2292 | 58 | 1812 | 1569 | 2396 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 39 | 7155 | 5957 | 9942 | 58 | 7860 | 6808 | 10395 |
| MARGARINE | PRICE PER 100 GRAMS OF PRODUCT | 31 | 4511 | 3000 | 6000 | 31 | 5377 | 4000 | 8000 |
| | PRICE PER 100 KCAL OF ENERGY | 31 | 614 | 408 | 816 | 31 | 732 | 544 | 1088 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 31 | 451 | 300 | 600 | 31 | 538 | 400 | 800 |
| LACTOGEN | PRICE PER 100 GRAMS OF PRODUCT | 32 | 18416 | 10000 | 20000 | 32 | 22613 | 18000 | 26000 |
| | PRICE PER 100 KCAL OF ENERGY | 32 | 4039 | 2193 | 4386 | 32 | 4959 | 3947 | 5702 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 32 | 3410 | 1852 | 3704 | 32 | 4188 | 3333 | 4815 |
| CERELAC | PRICE PER 100 GRAMS OF PRODUCT | 22 | 17153 | 14000 | 20000 | 20 | 20675 | 17000 | 32500 |
| | PRICE PER 100 KCAL OF ENERGY | 22 | 4127 | 3369 | 4812 | 20 | 4975 | 4090 | 7820 |
| | PRICE PER 100 UNITS OF RETINOL ACTIVITY EQUIVALENT | 22 | 6126 | 5000 | 7143 | 20 | 7384 | 6071 | 11607 |

TABLE 3.12 PERCENTAGE OF HOUSEHOLDS THAT CULTIVATED AND SOLD STAPLE FOOD CROPS IN 2004

| | | | ALL HOUSEHOLDS | | AREA | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | INTERVENTION | | CONTROL | |
| CROP | | | Count | % | Count | % | Count | % |
| MAIZE | CULTIVATED | YES | 366 | 49.4 | 275 | 55.2 | 91 | 37.4 |
| | SOLD | NO | 293 | 80.3 | 210 | 76.6 | 83 | 91.2 |
| | | YES | 72 | 19.7 | 64 | 23.4 | 8 | 8.8 |
| RICE | CULTIVATED | YES | 705 | 95.1 | 473 | 95.0 | 232 | 95.5 |
| | SOLD | NO | 609 | 86.5 | 406 | 85.8 | 203 | 87.9 |
| | | YES | 95 | 13.5 | 67 | 14.2 | 28 | 12.1 |
| SORGHUM | CULTIVATED | YES | 25 | 3.4 | 22 | 4.4 | 3 | 1.2 |
| | SOLD | NO | 24 | 96.0 | 21 | 95.5 | 3 | 100.0 |
| | | YES | 1 | 4.0 | 1 | 4.5 | | |
| MANIOC | CULTIVATED | YES | 680 | 91.8 | 492 | 98.8 | 188 | 77.4 |
| | SOLD | NO | 552 | 81.2 | 384 | 78.2 | 168 | 88.9 |
| | | YES | 128 | 18.8 | 107 | 21.8 | 21 | 11.1 |
| SWEETPOTATO | CULTIVATED | YES | 602 | 81.2 | 467 | 93.8 | 135 | 55.6 |
| | SOLD | NO | 419 | 69.7 | 316 | 67.8 | 103 | 76.3 |
| | | YES | 182 | 30.3 | 150 | 32.2 | 32 | 23.7 |
| BEANS | CULTIVATED | YES | 300 | 40.5 | 230 | 46.2 | 70 | 28.8 |
| | SOLD | NO | 257 | 85.4 | 196 | 84.8 | 61 | 87.1 |
| | | YES | 44 | 14.6 | 35 | 15.2 | 9 | 12.9 |
| GROUNDNUT | CULTIVATED | YES | 181 | 24.4 | 168 | 33.7 | 13 | 5.3 |
| | SOLD | NO | 150 | 83.3 | 141 | 84.4 | 9 | 69.2 |
| | | YES | 30 | 16.7 | 26 | 15.6 | 4 | 30.8 |

N=741 HOUSEHOLDS. 498 INTERVENTION, 243 CONTROL. DISTRICTS: MOPEIA 252 CASES, NAMACURRA 246 CASES AND NICOADALA 243 CASES. PERCENTAGE SOLD IS CALCULATED BASED ON THE NUMBER OF HOUSEHOLDS CULTIVATING SWEETPOTATO.

TABLE 3.13 TOTAL AMOUNT OF ANY TYPE OF SWEETPOTATO SOLD (KGS) AND THE PERCENT CONTRIBUTION OF ORANGE-FLESH SWEETPOTATO IN 2004 BY AREA

| | | | N | MEAN | STD DEV | 25TH PERCENTILE | MEDIAN | 75TH PERCENTILE |
|---|---|---|---|---|---|---|---|---|
| ALL HOUSEHOLDS | | TOTAL QUANTITY (KGS) OF ANY TYPE OF SWEETPOTATO SOLD | 181 | 59.8 | 75.0 | 12.6 | 37.8 | 76.4 |
| | | PERCENT OF SWEETPOTATO SOLD THAT WAS ORANGE-FLESHED | 181 | 71.0 | 42.1 | 36.7 | 100.0 | 100.0 |
| | | RECEIPTS (CONTOS) FROM SALE OF ANY TYPE OF SWEETPOTATO | 181 | 77.3 | 75.8 | 25.0 | 50.0 | 100.0 |
| | | PERCENT OF SWEETPOTATO SALES (CONTOS) FROM ORANGE-FLESHED SWEETPOTATO | 181 | 71.6 | 41.6 | 41.7 | 100.0 | 100.0 |
| AREA | INTERVENTION | TOTAL QUANTITY (KGS) OF ANY TYPE OF SWEETPOTATO SOLD | 149 | 54.9 | 57.4 | 12.6 | 37.8 | 71.8 |
| | | PERCENT OF SWEETPOTATO SOLD THAT WAS ORANGE-FLESHED | 149 | 83.4 | 32.8 | 91.4 | 100.0 | 100.0 |
| | | RECEIPTS (CONTOS) FROM SALE OF ANY TYPE OF SWEETPOTATO | 149 | 75.5 | 70.4 | 26.0 | 50.0 | 100.0 |
| | | PERCENT OF SWEETPOTATO SALES (CONTOS) FROM ORANGE-FLESHED SWEETPOTATO | 149 | 84.1 | 31.9 | 90.0 | 100.0 | 100.0 |
| | CONTROL | TOTAL QUANTITY (KGS) OF ANY TYPE OF SWEETPOTATO SOLD | 32 | 82.6 | 127.6 | 7.1 | 25.2 | 101.9 |
| | | PERCENT OF SWEETPOTATO SOLD THAT WAS ORANGE-FLESHED | 32 | 13.1 | 31.0 | .0 | .0 | .0 |
| | | RECEIPTS (CONTOS) FROM SALE OF ANY TYPE OF SWEETPOTATO | 32 | 85.5 | 98.1 | 20.0 | 42.5 | 137.5 |
| | | PERCENT OF SWEETPOTATO SALES (CONTOS) FROM ORANGE-FLESHED SWEETPOTATO | 32 | 13.5 | 31.2 | .0 | .0 | .0 |

NOTE: ONLY HOUSEHOLDS SELLING SWEETPOTATO ARE INCLUDED

TABLE 3.14 AVERAGE PRICE PAID (CONTOS) PER KILOGRAM FOR PURE ORANGE-FLESHED AND WHITE-FLESHED SWEETPOTATOES IN 2004

| | | N | MEAN | STD DEV | MEDIAN | MINIMUM | MAXIMUM |
|---|---|---|---|---|---|---|---|
| **ORANGE-FLESHED VARIETIES** | | | | | | | |
| ALL HOUSEHOLDS | | 139 | 1.91 | 1.14 | 1.59 | 0.59 | 8.00 |
| AREA | INTERVENTION | 135 | 1.92 | 1.15 | 1.59 | 0.59 | 8.00 |
| | CONTROL | 4 | 1.84 | 0.92 | 1.65 | 0.98 | 3.07 |
| **WHITE-FLESHED VARIETIES** | | | | | | | |
| ALL HOUSEHOLDS | | 64 | 1.52 | 0.87 | 1.19 | 0.29 | 4.76 |
| AREA | INTERVENTION | 37 | 1.38 | 0.69 | 1.19 | 0.29 | 3.17 |
| | CONTROL | 27 | 1.71 | 1.05 | 1.19 | 0.59 | 4.76 |

NOTE: PRICE PER KILOGRAM CALCULATED FROM TOTAL VALUE OF SALES DIVIDED BY TOTAL QUANTITY SOLD FROM RECALL PRODUCTION DATA.

# TABLE 3.15 AVERAGE VALUES PER HOUSEHOLD OF TOTAL SALES (IN CONTOS) FOR EACH STAPLE FOOD CROP EXCEPT SWEETPOTATO SOLD IN 2004 BY AREA

| | | | | ALL HOUSEHOLDS | AREA | |
|---|---|---|---|---|---|---|
| | | | | | INTERVENTION | CONTROL |
| CROP | MAIZE | TOTAL VALUE OF SALES (IN CONTOS) | MEAN | 172.2 | 178.4 | 122.5 |
| | | | STD DEV | 174.9 | 178.3 | 143.9 |
| | | | MEDIAN | 102.5 | 112.5 | 72.5 |
| | | | N | 72 | 64 | 8 |
| | RICE | TOTAL VALUE OF SALES (IN CONTOS) | MEAN | 326.5 | 259.4 | 487.1 |
| | | | STD DEV | 365.9 | 246.1 | 529.2 |
| | | | MEDIAN | 200.0 | 200.0 | 400.0 |
| | | | N | 95 | 67 | 28 |
| | MANIOC | TOTAL VALUE OF SALES (IN CONTOS) | MEAN | 167.1 | 181.9 | 91.4 |
| | | | STD DEV | 220.7 | 236.6 | 74.5 |
| | | | MEDIAN | 100.0 | 100.0 | 80.0 |
| | | | N | 128 | 107 | 21 |
| | BEANS | TOTAL VALUE OF SALES (IN CONTOS) | MEAN | 73.2 | 61.6 | 118.6 |
| | | | STD DEV | 123.0 | 42.2 | 266.1 |
| | | | MEDIAN | 50.0 | 50.0 | 25.0 |
| | | | N | 44 | 35 | 9 |
| | GROUNDNUT | TOTAL VALUE OF SALES (IN CONTOS) | MEAN | 58.1 | 58.3 | 56.3 |
| | | | STD DEV | 47.4 | 47.8 | 51.5 |
| | | | MEDIAN | 50.0 | 50.0 | 62.5 |
| | | | N | 30 | 26 | 4 |

TOTAL MEAN AND MEDIAN VALUES CALCULATED ONLY FOR HOUSEHOLDS SELLING THE CROP

# TABLE 3.16 WHO IS RESPONSIBLE FOR THE DECISION TO SELL SWEETPOTATO IN 2004 BY AREA

| | ALL HOUSEHOLDS | | AREA | | | | DISTRICT | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | INTERVENTION | | CONTROL | | MOPEIA | | NAMACURRA | | NICOADALA | |
| | N | % | N | % | N | % | N | % | N | % | N | % |
| MAN | 78 | 43.1 | 66 | 44.3 | 12 | 37.5 | 45 | 50.6 | 21 | 35.0 | 12 | 37.5 |
| WOMAN | 77 | 42.5 | 61 | 40.9 | 16 | 50.0 | 32 | 36.0 | 29 | 48.3 | 16 | 50.0 |
| BOTH | 26 | 14.4 | 22 | 14.8 | 4 | 12.5 | 12 | 13.5 | 10 | 16.7 | 4 | 12.5 |

NOTE: ONLY INCLUDED HOUSEHOLDS THAT SOLD SWEETPOTATO IN 2004

## TABLE 3.17

**DESCRIPTION OF SAMPLE FOR RAPID ASSESSMENT OF PURCHASE AND CONSUMPTION OF ORANGE-FLESHED SWEETPOTATO ROOTS (OFSP)**

| | | ENTIRE SAMPLE (N=49) | | MARKET | | | |
|---|---|---|---|---|---|---|---|
| | | | | LUALUA (N=31) | | LICUAR (N=18) | |
| | | Count | Col % | Count | Col % | Count | Col % |
| SEX OF INTERVIEWEE | MEN | 33 | 67.3% | 22 | 71.0% | 11 | 61.1% |
| | WOMEN | 16 | 32.7% | 9 | 29.0% | 7 | 38.9% |
| AGE IN YRS BY CATEGORY | 14-20 YRS | 15 | 30.6% | 11 | 35.5% | 4 | 22.2% |
| | 21-30 YRS | 20 | 40.8% | 14 | 45.2% | 6 | 33.3% |
| | 31-59 YRS | 13 | 26.5% | 6 | 19.4% | 7 | 38.9% |
| | DO NOT KNOW | 1 | 2.0% | 0 | .0% | 1 | 5.6% |
| LEVEL OF FORMAL EDUCATION BY CATEGORY | NO FORMAL EDUCATION | 1 | 2.0% | 0 | .0% | 1 | 5.6% |
| | 1-4 YRS | 20 | 40.8% | 12 | 38.7% | 8 | 44.4% |
| | 5-10 YRS | 28 | 57.1% | 19 | 61.3% | 9 | 50.0% |
| PRINCIPAL ACTIVITY | PEASANT/FARMER/ FISHERMAN | 14 | 28.6% | 13 | 41.9% | 1 | 5.6% |
| | SELLER OF FOOD PRODUCTS | 7 | 14.3% | 2 | 6.5% | 5 | 27.8% |
| | TRADER | 12 | 24.5% | 6 | 19.4% | 6 | 33.3% |
| | STUDENT | 10 | 20.4% | 7 | 22.6% | 3 | 16.7% |
| | TEACHER | 2 | 4.1% | 1 | 3.2% | 1 | 5.6% |
| | MASON | 1 | 2.0% | 1 | 3.2% | 0 | .0% |
| | DOMESTIC WORK | 1 | 2.0% | 1 | 3.2% | 0 | .0% |
| | ASSISTANT DRIVER | 1 | 2.0% | 0 | .0% | 1 | 5.6% |
| | DRIVER | 1 | 2.0% | 0 | .0% | 1 | 5.6% |

Rapid Purchasing & Consumption Assessment conducted in February 2005. Of 114 persons approached in market for survey, 29 (25%) had never bought BDPA; 49 (43%) had bought and agreed to participate in survey.

## TABLE 3.18

**KNOWLEDGE ABOUT ORANGE FLESHED SWEET POTATO AND PREFERENCES REGARDING PURCHASING IN MARKET SAMPLE**

| | | ENTIRE SAMPLE (N=49) | | MARKET | | | | SEX OF INTERVIEWEE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | LUALUA (N=31) | | LICUAR (N=18) | | MEN (N=33) | | WOMEN (N=16) | |
| | | Count | Col % | Count | Col % | Count | Col % | Count | Col % | Count | Col % |
| WHAT DO YOU KNOW ABOUT ORANGE FLESH SWEET POTATO? | GIVES VITAMINS & HEALTH | 8 | 16.3% | 6 | 19.4% | 2 | 11.1% | 5 | 15.2% | 3 | 18.8% |
| | IT IS GOOD/TASTY & RICH IN VITAMIN A | 4 | 8.2% | 4 | 12.9% | 0 | .0% | 3 | 9.1% | 1 | 6.3% |
| | HAS GOOD AROMA & IS NUTRITIOUS | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 1 | 3.0% | 0 | .0% |
| | GIVES STRENGTH & HEALTH | 3 | 6.1% | 3 | 9.7% | 0 | .0% | 2 | 6.1% | 1 | 6.3% |
| | IS GOOD/TASTY | 4 | 8.2% | 2 | 6.5% | 2 | 11.1% | 4 | 12.1% | 0 | .0% |
| | GIVES VITAMIN A, PROTECTS AGAINST ILLNESSES & PROTECTS SIGHT | 4 | 8.2% | 2 | 6.5% | 2 | 11.1% | 3 | 9.1% | 1 | 6.3% |
| | GIVES HEALTH AND HELPS GROWTH | 4 | 8.2% | 3 | 9.7% | 1 | 5.6% | 2 | 6.1% | 2 | 12.5% |
| | GIVES HEALTH & PROTECTS SIGHT | 2 | 4.1% | 2 | 6.5% | 0 | .0% | 2 | 6.1% | 0 | .0% |
| | PROVIDES VITAMINS | 2 | 4.1% | 2 | 6.5% | 0 | .0% | 1 | 3.0% | 1 | 6.3% |
| | GIVES HEALTH | 10 | 20.4% | 5 | 16.1% | 5 | 27.8% | 4 | 12.1% | 6 | 37.5% |
| | GIVES BLOOD & HEALTH | 3 | 6.1% | 1 | 3.2% | 2 | 11.1% | 3 | 9.1% | 0 | .0% |
| | GIVES VITAMIN A, INCREASES BLOOD & MAKES CHILD GROW | 2 | 4.1% | 0 | .0% | 2 | 11.1% | 1 | 3.0% | 1 | 6.3% |
| | IS TASTY & CAN BE USED TO MAKE BREAD & CAKES | 2 | 4.1% | 0 | .0% | 2 | 11.1% | 2 | 6.1% | 0 | .0% |
| SPECIFIC NAME OF ORANGE FLESH SWEET POTATO YOU LIKE THE MOST | RESISTO | 7 | 14.3% | 4 | 12.9% | 3 | 16.7% | 2 | 6.1% | 5 | 31.3% |
| | DO NOT KNOW | 40 | 81.6% | 27 | 87.1% | 13 | 72.2% | 30 | 90.9% | 10 | 62.5% |
| | MISSING/NOT APPLICABLE | 2 | 4.1% | 0 | .0% | 2 | 11.1% | 1 | 3.0% | 1 | 6.3% |
| WHERE DO YOU PREFER TO PURCHASE SWEET POTATO? | WEIGHING SCALE | 28 | 57.1% | 27 | 87.1% | 1 | 5.6% | 21 | 63.6% | 7 | 43.8% |
| | UNWEIGHED PILES | 14 | 28.6% | 3 | 9.7% | 11 | 61.1% | 8 | 24.2% | 6 | 37.5% |
| | HAS NO PREFERENCE | 7 | 14.3% | 1 | 3.2% | 6 | 33.3% | 4 | 12.1% | 3 | 18.8% |
| WHO DECIDES TO BUY OFSP IN YOUR HOUSEHOLD | HEAD OF HOUSEHOLD | 39 | 79.6% | 27 | 87.1% | 12 | 66.7% | 33 | 100.0% | 6 | 37.5% |
| | MOTHER | 8 | 16.3% | 4 | 12.9% | 4 | 22.2% | 0 | .0% | 8 | 50.0% |
| | DAUGHTER | 2 | 4.1% | 0 | .0% | 2 | 11.1% | 0 | .0% | 2 | 12.5% |
| ORANGE FLESH SWEET POTATO CULTIVATED BY THIS HOUSEHOLD | YES | 24 | 49.0% | 17 | 54.8% | 7 | 38.9% | 13 | 39.4% | 11 | 68.8% |

Rapid Purchasing & Consumption Assessment conducted in February 2005. Of 114 persons approached in market for survey, 29 (25%) had never bought OFSP; 49 (43%) had bought and agreed to participate in survey.

## TABLE 3.19

**FREQUENCY OF PURCHASE OF ORANGE FLESHED SWEET POTATO (OFSP) IN 2004 & DESIRED FREQUENCY OF PURCHASE IF AVAILABLE**

| | | ENTIRE SAMPLE (N=49) | | MARKET | | | | SEX OF INTERVIEWEE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | LUALUA (N=31) | | LICUAR (N=18) | | MEN (N=33) | | WOMEN (N=16) | |
| | | Count | Col % | Count | Col % | Count | Col % | Count | Col % | Count | Col % |
| FREQUENCY OF PURCHASE WHEN OFSP AVAILABLE IN ABUNDANCE IN 2004 | 1 TIME PER WEEK | 7 | 14.3% | 6 | 19.4% | 1 | 5.6% | 6 | 18.2% | 1 | 6.3% |
| | 2 TIMES PER WEEK | 19 | 38.8% | 15 | 48.4% | 4 | 22.2% | 14 | 42.4% | 5 | 31.3% |
| | ONCE A MONTH | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 0 | .0% | 1 | 6.3% |
| | 2 TIMES PER YEAR | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 1 | 3.0% | 0 | .0% |
| | ONCE A DAY | 2 | 4.1% | 1 | 3.2% | 1 | 5.6% | 1 | 3.0% | 1 | 6.3% |
| | 4 TIMES PER WEEK | 5 | 10.2% | 3 | 9.7% | 2 | 11.1% | 4 | 12.1% | 1 | 6.3% |
| | DID NOT BUY IN 2004, JUST 2005 | 4 | 8.2% | 1 | 3.2% | 3 | 16.7% | 1 | 3.0% | 3 | 18.8% |
| | 3 TIMES PER WEEK | 7 | 14.3% | 3 | 9.7% | 4 | 22.2% | 4 | 12.1% | 3 | 18.8% |
| | 6 TIMES PER WEEK | 3 | 6.1% | 0 | .0% | 3 | 16.7% | 2 | 6.1% | 1 | 6.3% |
| FREQUENCY OF PURCHASE WHEN OFSP MORE SCARCE IN MARKET IN 2004 | 1 TIME PER WEEK | 15 | 30.6% | 14 | 45.2% | 1 | 5.6% | 11 | 33.3% | 4 | 25.0% |
| | DID NOT BUY | 22 | 44.9% | 10 | 32.3% | 12 | 66.7% | 14 | 42.4% | 8 | 50.0% |
| | 2 TIMES PER MONTH | 3 | 6.1% | 2 | 6.5% | 1 | 5.6% | 2 | 6.1% | 1 | 6.3% |
| | 2 TIMES PER WEEK | 8 | 16.3% | 5 | 16.1% | 3 | 16.7% | 5 | 15.2% | 3 | 18.8% |
| DESIRED FREQUENCY OF PURCHASE IN HUNGER SEASON IF OFSP WOULD BE AVAILABLE DAILY | 5 TIMES PER WEEK | 7 | 14.3% | 6 | 19.4% | 1 | 5.6% | 6 | 18.2% | 1 | 6.3% |
| | EVERY DAY | 9 | 18.4% | 6 | 19.4% | 3 | 16.7% | 7 | 21.2% | 2 | 12.5% |
| | 2 TIMES PER WEEK | 5 | 10.2% | 2 | 6.5% | 3 | 16.7% | 3 | 9.1% | 2 | 12.5% |
| | 3 TIMES PER WEEK | 12 | 24.5% | 6 | 19.4% | 6 | 33.3% | 8 | 24.2% | 4 | 25.0% |
| | 4 TIMES PER WEEK | 15 | 30.6% | 11 | 35.5% | 4 | 22.2% | 9 | 27.3% | 6 | 37.5% |
| | WHEN MONEY IS AVAILABLE | 1 | 2.0% | 0 | .0% | 1 | 5.6% | 0 | .0% | 1 | 6.3% |
| DESIRED FREQUENCY OF PURCHASE IN JUNE & JULY IF OFSP WOULD BE AVAILABLE DAILY | 3 TIMES PER WEEK | 8 | 16.3% | 7 | 22.6% | 1 | 5.6% | 7 | 21.2% | 1 | 6.3% |
| | 1 TIME PER WEEK | 3 | 6.1% | 2 | 6.5% | 1 | 5.6% | 3 | 9.1% | 0 | .0% |
| | 2 TIMES PER WEEK | 18 | 36.7% | 16 | 51.6% | 2 | 11.1% | 15 | 45.5% | 3 | 18.8% |
| | 6 TIMES PER WEEK | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 0 | .0% | 1 | 6.3% |
| | WOULD NOT BUY | 10 | 20.4% | 5 | 16.1% | 5 | 27.8% | 3 | 9.1% | 7 | 43.8% |
| | EVERY DAY | 6 | 12.2% | 0 | .0% | 6 | 33.3% | 4 | 12.1% | 2 | 12.5% |
| | 4 TIMES PER WEEK | 2 | 4.1% | 0 | .0% | 2 | 11.1% | 0 | .0% | 2 | 12.5% |

Rapid Purchasing & Consumption Assessment conducted in February 2005. Of 114 persons approached in market for survey, 29 (25%) had never bought OFSP; 49 (43%) had bought and agreed to participate in survey.

## TABLE 3.20

**WHO NEEDS TO EAT ORANGE-FLESHED SWEET POTATO THE MOST?**

| | | | ENTIRE SAMPLE (N=49) | MARKET | | SEX OF INTERVIEWEE | |
|---|---|---|---|---|---|---|---|
| | | | | LUALUA (N=31) | LICUARI (N=18) | MEN (N=33) | WOMEN (N=16) |
| WHO NEEDS TO EAT ORANGE-FLESH SWEET POTATO MOST | MEN | Count | 9 | 5 | 4 | 7 | 2 |
| | | Column % | 18.4% | 16.1% | 22.2% | 21.2% | 12.5% |
| | WOMEN | Count | 20 | 7 | 13 | 13 | 7 |
| | | Column % | 40.8% | 22.6% | 72.2% | 39.4% | 43.8% |
| | SCHOOL AGE CHILDREN | Count | 24 | 15 | 9 | 16 | 8 |
| | | Column % | 49.0% | 48.4% | 50.0% | 48.5% | 50.0% |
| | SMALL CHILDREN | Count | 20 | 14 | 6 | 14 | 6 |
| | | Column % | 40.8% | 45.2% | 33.3% | 42.4% | 37.5% |
| | ELDERLY | Count | 2 | 1 | 1 | 1 | 1 |
| | | Column % | 4.1% | 3.2% | 5.6% | 3.0% | 6.3% |
| | DO NOT KNOW | Count | 23 | 20 | 3 | 15 | 8 |
| | | Column % | 46.9% | 64.5% | 16.7% | 45.5% | 50.0% |

Rapid Purchasing & Consumption Assessment conducted in February 2005. Of 114 persons approached in market for survey, 29 (25%) had never bought OFSP; 49 (43%) had bought and agreed to participate in survey.

## TABLE 3.21

**PREFERENCE BETWEEN ORANGE-FLESHED AND WHITE-FLESHED SWEET POTATO & HOW IT IS PREPARED IN THE HOME**

| | | ENTIRE SAMPLE (N=49) | | MARKET | | | | SEX OF INTERVIEWEE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | LUALUA (N=31) | | LICUAR (N=18) | | MEN (N=33) | | WOMEN (N=16) | |
| | | Count | Col % | Count | Col % | Count | Col % | Count | Col % | Count | Col % |
| PREFER ORANGE-FLESH (OFSP) OR WHITE-FLESH SWEET POTATO? | ORANGE-FLESH SWEET POTATO | 37 | 75.5% | 28 | 90.3% | 9 | 50.0% | 24 | 72.7% | 13 | 81.3% |
| | WHITE SWEET POTATO | 3 | 6.1% | 0 | .0% | 3 | 16.7% | 3 | 9.1% | 0 | .0% |
| | DO NOT HAVE PREFERENCE | 9 | 18.4% | 3 | 9.7% | 6 | 33.3% | 6 | 18.2% | 3 | 18.8% |
| HOW DO YOU PREPARE OFSP AT HOME? | PEEL, MIX WITH COCONUT, WASH & COOK WITH A LITTLE WATER | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 1 | 3.0% | 0 | .0% |
| | PEEL, MIX WITH BEANS (MUCAPATA) | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 1 | 3.0% | 0 | .0% |
| | PEEL, COOK WT A LITTLE H20/UNPEELED, COOK WITH A LITTLE H20 | 12 | 24.5% | 12 | 38.7% | 0 | .0% | 10 | 30.3% | 2 | 12.5% |
| | BOILED WITH SUFFICIENT WATER & SALT; ALSO ROAST | 3 | 6.1% | 2 | 6.5% | 1 | 5.6% | 3 | 9.1% | 0 | .0% |
| | COOK WITH NORMAL AMOUNT OF WATER; ALSO FRY | 6 | 12.2% | 3 | 9.7% | 3 | 16.7% | 4 | 12.1% | 2 | 12.5% |
| | PEEL & COOK WITH A LOT OF WATER | 3 | 6.1% | 3 | 9.7% | 0 | .0% | 2 | 6.1% | 1 | 6.3% |
| | STEAM | 2 | 4.1% | 2 | 6.5% | 0 | .0% | 1 | 3.0% | 1 | 6.3% |
| | COOK WT NORMAL AMT H20; ROAST, MIX WT DARK GREEN LEAVES | 2 | 4.1% | 2 | 6.5% | 0 | .0% | 0 | .0% | 2 | 12.5% |
| | UNPEELED, COOKED WITH A LITTLE WATER | 7 | 14.3% | 4 | 12.9% | 3 | 16.7% | 3 | 9.1% | 4 | 25.0% |
| | PEEL, CUT IN PIECES, & COOK WITH A LITTLE WATER | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 1 | 3.0% | 0 | .0% |
| | WASH & COOK UNPEELED AS NORMAL; SOMETIMES FRY OR ROAST | 4 | 8.2% | 0 | .0% | 4 | 22.2% | 2 | 6.1% | 2 | 12.5% |
| | COOK UNPEELED, WITH A LITTLE WATER & ALSO ROASTED | 2 | 4.1% | 0 | .0% | 2 | 11.1% | 2 | 6.1% | 0 | .0% |
| | COOK WITH COCONUT | 1 | 2.0% | 0 | .0% | 1 | 5.6% | 0 | .0% | 1 | 6.3% |
| | COOK UNPEELED WITH A LITTLE WATER; COOK WITH COCONUT | 3 | 6.1% | 0 | .0% | 3 | 16.7% | 2 | 6.1% | 1 | 6.3% |
| DO YOU PREPARE OFSP DIFFERENTLY FOR THE CHILD? | NO | 39 | 79.6% | 24 | 77.4% | 15 | 83.3% | 28 | 84.8% | 11 | 68.8% |
| | YES | 9 | 18.4% | 7 | 22.6% | 2 | 11.1% | 4 | 12.1% | 5 | 31.3% |

Rapid Purchasing & Consumption Assessment conducted in February 2005. Of 114 persons approached in market for survey, 29 (25%) had never bought BDPA; 49 (43%) had bought and agreed to participate in survey.

## TABLE 3.22

**SOURCE OF INFORMATION ABOUT VITAMIN A RICH FOODS AND THE IMPORTANCE OF CONSUMING FOODS RICH IN VITAMIN A**

| | | ENTIRE SAMPLE (N=49) | | MARKET | | | | SEX OF INTERVIEWEE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | LUALUA (N=31) | | LICUAR (N=18) | | MEN (N=33) | | WOMEN (N=16) | |
| | | Count | Col % | Count | Col % | Count | Col % | Count | Col % | Count | Col % |
| WHERE DID YOU LEARN ABOUT VITAMIN A RICH FOODS? | THROUGH FRIENDS, NEWSPAPERS, & BOOKS | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 1 | 3.0% | 0 | .0% |
| | FROM SCHOOL & BOOKS | 6 | 12.2% | 5 | 16.1% | 1 | 5.6% | 5 | 15.2% | 1 | 6.3% |
| | FROM RADIO AND TV | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 1 | 3.0% | 0 | .0% |
| | THROUGH FRIENDS/RELATIVES | 3 | 6.1% | 3 | 9.7% | 0 | .0% | 2 | 6.1% | 1 | 6.3% |
| | AT THE HOSPITAL | 8 | 16.3% | 5 | 16.1% | 3 | 16.7% | 3 | 9.1% | 5 | 31% |
| | FROM SCHOOL, HEALTH CENTER | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 0 | .0% | 1 | 6.3% |
| | FROM THE RADIO | 5 | 10.2% | 2 | 6.5% | 3 | 16.7% | 5 | 15.2% | 0 | .0% |
| | FROM THE RADIO & HOSPITAL, SCHOOL BOOKS | 9 | 18.4% | 8 | 25.8% | 1 | 5.6% | 6 | 18.2% | 3 | 19% |
| | EXTENSIONIST & ON THE RADIO | 2 | 4.1% | 1 | 3.2% | 1 | 5.6% | 1 | 3.0% | 1 | 6.3% |
| | FROM SCHOOL | 7 | 14.3% | 3 | 9.7% | 4 | 22.2% | 6 | 18.2% | 1 | 6.3% |
| | IN THE HOSPITAL AND THROUGH FRIENDS | 3 | 6.1% | 1 | 3.2% | 2 | 11.1% | 1 | 3.0% | 2 | 13% |
| | FROM BOOKS & ON THE RADIO | 1 | 2.0% | 0 | .0% | 1 | 5.6% | 1 | 3.0% | 0 | .0% |
| | AT THE HOSPITAL AND THROUGH WORLD VISION | 1 | 2.0% | 0 | .0% | 1 | 5.6% | 0 | .0% | 1 | 6.3% |
| | FROM THE RADIO AND IN SCHOOL | 1 | 2.0% | 0 | .0% | 1 | 5.6% | 1 | 3.0% | 0 | .0% |
| WHAT IS THE IMPORTANCE OF EATING FOODS RICH IN VITAMIN A | HELPS WITH GROWTH & GIVES STRENGTH | 4 | 8.2% | 4 | 12.9% | 0 | .0% | 4 | 12.1% | 0 | .0% |
| | PROTECTS AGAINST DISEASE & GIVES HEALTH | 7 | 14.3% | 7 | 22.6% | 0 | .0% | 5 | 15.2% | 2 | 13% |
| | GIVES STRENGTH & HEALTH | 15 | 30.6% | 8 | 25.8% | 7 | 38.9% | 9 | 27.3% | 6 | 38% |
| | GIVES VITAMINS & HEALTH | 2 | 4.1% | 1 | 3.2% | 1 | 5.6% | 2 | 6.1% | 0 | .0% |
| | GIVES HEALTH & INCREASES BLOOD | 3 | 6.1% | 2 | 6.5% | 1 | 5.6% | 2 | 6.1% | 1 | 6.3% |
| | GIVES HEALTH | 14 | 28.6% | 8 | 25.8% | 6 | 33.3% | 9 | 27.3% | 5 | 31% |
| | HELPS GROWTH, GIVES HEALTH & GOOD SIGHT | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 1 | 3.0% | 0 | .0% |
| | GIVES HEALTH & MAKES CHILD GROW | 2 | 4.1% | 0 | .0% | 2 | 11.1% | 1 | 3.0% | 1 | 6.3% |
| | GIVES HEALTH & PROTECTS AGAINST DISEASE | 1 | 2.0% | 0 | .0% | 1 | 5.6% | 0 | .0% | 1 | 6.3% |

Rapid Purchasing & Consumption Assessment conducted in February 2005. Of 114 persons approached in market for survey, 29 (25%) had never bought BDPA; 49 (43%) had bought and agreed to participate in survey.

## TABLE 3.23

**AMOUNT SPENT ON ORANGE-FLESHED SWEET POTATO AT EACH PURCHASE WHEN ABUNDANT AND SCARCE IN MARKET**

| | | ENTIRE SAMPLE (N=49) | | MARKET | | | | SEX OF INTERVIEWEE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | LUALUA (N=31) | | LICUAR (N=18) | | MEN (N=33) | | WOMEN (N=16) | |
| | | Count | Col % | Count | Col % | Count | Col % | Count | Col % | Count | Col % |
| AMOUNT (CONTOS) SPENT EACH TIME ON BDPA PURCHASE WHEN ABUNDANT | 2.0 | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 0 | .0% | 1 | 6.3% |
| | 2.5 | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 0 | .0% | 1 | 6.3% |
| | 3.0 | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 1 | 3.0% | 0 | .0% |
| | 5.0 | 3 | 6.1% | 2 | 6.5% | 1 | 5.6% | 1 | 3.0% | 2 | 12.5% |
| | 6.0 | 11 | 22.4% | 11 | 35.5% | 0 | .0% | 10 | 30.3% | 1 | 6.3% |
| | 7.5 | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 1 | 3.0% | 0 | .0% |
| | 8.0 | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 0 | .0% | 1 | 6.3% |
| | 9.0 | 8 | 16.3% | 8 | 25.8% | 0 | .0% | 6 | 18.2% | 2 | 12.5% |
| | 10.0 | 9 | 18.4% | 1 | 3.2% | 8 | 44.4% | 8 | 24.2% | 1 | 6.3% |
| | 12.0 | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 0 | .0% | 1 | 6.3% |
| | 15.0 | 4 | 8.2% | 2 | 6.5% | 2 | 11.1% | 4 | 12.1% | 0 | .0% |
| | 20.0 | 2 | 4.1% | 0 | .0% | 2 | 11.1% | 1 | 3.0% | 1 | 6.3% |
| | 25.0 | 1 | 2.0% | 0 | .0% | 1 | 5.6% | 0 | .0% | 1 | 6.3% |
| | DO NOT REMEMBER | 5 | 10.2% | 1 | 3.2% | 4 | 22.2% | 1 | 3.0% | 4 | 25.0% |
| AMOUNT (CONTOS) SPENT EACH TIME ON BDPA PURCHASE WHEN SCARCE | 2.5 | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 0 | .0% | 1 | 6.3% |
| | 3.0 | 10 | 20.4% | 10 | 32.3% | 0 | .0% | 8 | 24.2% | 2 | 12.5% |
| | 4.0 | 1 | 2.0% | 1 | 3.2% | 0 | .0% | 0 | .0% | 1 | 6.3% |
| | 5.0 | 1 | 2.0% | 0 | .0% | 1 | 5.6% | 1 | 3.0% | 0 | .0% |
| | 6.0 | 8 | 16.3% | 8 | 25.8% | 0 | .0% | 6 | 18.2% | 2 | 12.5% |
| | 10.0 | 1 | 2.0% | 0 | .0% | 1 | 5.6% | 1 | 3.0% | 0 | .0% |
| | 20.0 | 1 | 2.0% | 0 | .0% | 1 | 5.6% | 0 | .0% | 1 | 6.3% |
| | 30.0 | 1 | 2.0% | 0 | .0% | 1 | 5.6% | 1 | 3.0% | 0 | .0% |
| | DID NOT PURCHASE | 25 | 51.0% | 11 | 35.5% | 14 | 77.8% | 16 | 48.5% | 9 | 56.3% |

Rapid Purchasing & Consumption Assessment conducted in February 2005. Of 114 persons approached in market for survey, 29 (25%) had never bought BDPA; 49 (43%) had bought and agreed to participate in survey.

# TABLE 3.24 DIFFERENT USES OF SWEETPOTATO BY THE HOUSEHOLD IN 2004

| | | ALL HOUSEHOLDS | | AREA | | | |
|---|---|---|---|---|---|---|---|
| | | | | INTERVENTION | | CONTROL | |
| | | N | % | N | % | N | % |
| DID YOU DRY PART OF (ANY KIND) SWEET POTATO YIELD IN 2004 | NO | 402 | 66.8 | 283 | 60.6 | 119 | 88.1 |
| | YES | 200 | 33.2 | 184 | 39.4 | 16 | 11.9 |
| THIS YEAR DID YOUR HH - EAT SWEET POTATO LEAVES | NO | 164 | 27.2 | 92 | 19.7 | 72 | 53.3 |
| | YES | 438 | 72.8 | 375 | 80.3 | 63 | 46.7 |
| THIS YEAR DID YOUR HH - MAKE SWEET POTATO PORRIDGE | NO | 254 | 42.2 | 123 | 26.3 | 131 | 97.0 |
| | YES | 348 | 57.8 | 344 | 73.7 | 4 | 3.0 |
| THIS YEAR DID YOUR HH - MAKE SWEET POTATO FLOUR | NO | 574 | 95.3 | 440 | 94.2 | 134 | 99.3 |
| | YES | 28 | 4.7 | 27 | 5.8 | 1 | .7 |
| THIS YEAR DID YOUR HH - FEED AN ANIMAL WITH SWEET POTATO | NO | 462 | 76.7 | 355 | 76.0 | 107 | 79.3 |
| | YES | 140 | 23.3 | 112 | 24.0 | 28 | 20.7 |
| THIS YEAR DID YOUR HH - FEED AN ANIMAL WITH SP LEAVES | NO | 546 | 90.7 | 425 | 91.0 | 121 | 89.6 |
| | YES | 56 | 9.3 | 42 | 9.0 | 14 | 10.4 |
| THIS YEAR DID YOUR HH - STORE FRESH SWEET POTATO | NO | 573 | 95.2 | 439 | 94.0 | 134 | 99.3 |
| | YES | 29 | 4.8 | 28 | 6.0 | 1 | .7 |

ONLY INCLUDED HOUSEHOLDS THAT PRODUCED SWEETPOTATO IN 2004

TABLE 3.25 COMPARISON OF COSTS AND PROFITS OF 100% WHEAT FLOUR AND GOLDEN BREAD IN LUALUA (2004)

**A. WHEAT FLOUR**
**BREAD PRODUCES 250 UNITS**

EACH UNIT SELLS AT 1000 MT

**TOTAL RECEIPTS (MT): 250000**

| INGREDIENT | QUANTITY | UNIT OF MEASURE | GRAMS PER UNIT OF MEASURE | TOTAL GRAMS | VALUE PER UNIT OF MEASURE | TOTAL VALUE IN METICAIS |
|---|---|---|---|---|---|---|
| WHEAT FLOUR | 20 | PLASTIC WATER JUGS | 785 | 15,700 | 8164 | 163,280 |
| YEAST | 2 | LEVEL MATCH BOXES | 15.12 | 30 | 1512 | 3,024 |
| IMPROVER (SOLD TO BREAD MAKERS) | 1 | LEVEL MATCH BOX | 16.7 | 17 | 1670 | 1,670 |
| SALT | 1 | TABLESPOON | | | | 1,000 |
| | | | | | | |
| DAILY MARKET FEE | 1 | DAY | | | 2000 | 2,000 |
| WOOD | 1 | STACK | | | 5000 | 5,000 |
| CHARCOAL | 0.25 | SACK | | | 15000 | 3,750 |
| PERSONAL TRANSPORT TO QUELIMANE | 0.25 | RETURN TRIP: LUALUA-QUELIMANE | | | 60000 | 15,000 |
| TRANSPORT OF WHEAT FLOUR SACK | 0.25 | TRIP FROM QUELIMANE TO LUALUA | | | 20000 | 5,000 |
| | | | | | | |
| | | | | **TOTAL COSTS** | | **199,724** |
| *NOTE: WHEAT FLOUR CAN ONLY BE PURCHASED IN THE PROVINCIAL CAPITAL* | | | | | | |
| *QUELIMANE. ONE SACK LASTS FOR 4 DAYS.* | | | | | **PROFIT** | **50,276** |

TABLE 3.25, CONT.

| **B. GOLDEN SWEET POTATO BREAD PRODUCES 264 UNITS** | EACH UNIT SELLS AT | 1000 MT | **TOTAL RECEIPTS (MT):** | **264,000** |
|---|---|---|---|---|

| INGREDIENT | QUANTITY | UNIT OF MEASURE | GRAMS PER UNIT OF MEASURE | TOTAL GRAMS | VALUE PER UNIT OF MEASURE | TOTAL VALUE IN METICAIS |
|---|---|---|---|---|---|---|
| WHEAT FLOUR | 12 | PLASTIC WATER JUGS | 785 | 9,420 | 8164 | 97,968 |
| YEAST | 12 | LEVEL MATCH BOXES | 15.12 | 181 | 1512 | 18,144 |
| IMPROVER (SOLD TO BREAD MAKERS) | 6 | LEVEL MATCH BOX | 4.16 | 25 | 416 | 2,496 |
| SALT | 2 | TABLESPOON | | | | 1,486 |
| BOILED AND MASHED ORANGE FLESH SWEET POTATO (FROM 30 MEDIUM SIZE ROOTS (EACH 225 gms) | 18 | 300 ML PLASTIC CUPS | 319 | 5742 | 1167.54 | 21,016 |
| | | | | | | |
| DAILY MARKET FEE | 1 | DAY | | | 2000 | 2,000 |
| WOOD | 1 | STACK | | | 5000 | 5,000 |
| CHARCOAL | 0.2 | SACK | | | 15000 | 3,000 |
| PERSONAL TRANSPORT TO QUELIMANE | 0.2 | RETURN TRIP: LUALUA-QUELIMANE | | | 60000 | 12,000 |
| TRANSPORT OF WHEAT FLOUR SACK | 0.2 | TRIP FROM QUELIMANE TO LUALUA | | | 20000 | 4,000 |
| | | | | | | |
| *NOTE: A SACK OF WHEAT FLOUR NOW LASTS 5 DAYS INSTEAD OF FOUR, REDUCING OVERALL TRANSPORT COST.* | | | | **TOTAL COSTS** | | **167,110** |
| | | | | | **PROFIT** | **96,890** |

TABLE 3.26 RESULTS FROM LABORATORY ANALYSIS OF BETA-CAROTENE CONTENT OF GOLDEN BREAD SAMPLES MADE FROM 5 ORANGE-FLESHED SWEETPOTATO (OFSP) VARIETIES

| BREAD SAMPLE USING OFSP VARIETY (FRESH OR DRIED): | TOTAL β-CAROTENE µg/gm | | | TRANS-β-CAROTENE µg/gm | | | PER 60 GRAM BUN: | | PER 110 GM BUN: | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | TRANS-β-CAROTENE µg | RAE µg | TRANS-β-CAROTENE µg | RAE µg |
| | MEAN | STD DEV | CV | MEAN | STD DEV | CV | | | | |
| RESISTO - fresh | 19.1 | 0.3 | 1.7 | 15.0 | 0.2 | 1.5 | 899 | 75 | 1,648 | 137 |
| RESISTO - chips | 18.8 | 0.5 | 2.6 | 14.5 | 0.4 | 2.6 | 872 | 73 | 1,598 | 133 |
| MGCL01 - fresh | 20.4 | 0.2 | 1.0 | 14.7 | 0.05 | 0.33 | 881 | 73 | 1,616 | 135 |
| MGCL01 - chips | 17.6 | 0.3 | 1.8 | 13.4 | 0.1 | 1 | 802 | 67 | 1,471 | 123 |
| GABAGABA (440215) - fresh | 20.7 | 0.1 | 0.7 | 16.0 | 0.2 | 1.2 | 961 | 80 | 1,762 | 147 |
| GABAGABA (440215) - chips | 17.4 | 0.4 | 2.1 | 12.7 | 0.3 | 2.4 | 761 | 63 | 1,396 | 116 |
| TIB4 – fresh | 13.1 | 0.4 | 3.2 | 9.3 | 0.2 | 2.6 | 559 | 47 | 1,025 | 85 |
| TIB4 – chips | 9.5 | 0.1 | 0.5 | 6.8 | 0.1 | 0.9 | 411 | 34 | 753 | 63 |
| LO-323 - fresh | 11.5 | 0.3 | 3.0 | 8.8 | 0.2 | 2.7 | 529 | 44 | 971 | 81 |
| LO-323 - chips | 10.1 | 0.1 | 1.0 | 7.3 | 0.1 | 1.6 | 439 | 37 | 804 | 67 |

NOTES: Analysis done by Paul van Jaarsveld, Medical Research Council, 2005. Results are for duplicate determinations. Fresh = boiled and mashed; chips = re-hydrated, boiled and mashed. Total Beta-Carotene = trans + 9-cis + 13-cis beta-Carotene. Trans Beta-Carotene = without 9-cis and 13-cis beta-Carotene. RAE= Retinol Activity Equivalent Unit: 12 units beta-carotene per 1 Unit Retinol.

TABLE 3.27 BETA-CAROTENE (TOTAL AND ALL-TRANS) CONTENT OF SMALL AND MEDIUM SIZE GOLDEN BREAD ROLLS MADE FROM RESISTO (DARK ORANGE-FLESH) AND THEIR CONTRIBUTION TO VITAMIN A INTAKE BY AGE AND SEX GROUP

| | SIZE OF BUN | |
|---|---|---|
| | 60 gms | 110 gms |
| Total Beta-Carotene Content | 1146 | 2101 |
| Total all-trans Beta-Carotene Content | 899 | 1650 |
| Vitamin A value (µg RAE) (12:1 conversion) | 75 | 137 |
| % Contribution to Dietary Reference Intake | | |
| Children 1-3 years old | 25 | 46 |
| Children 4-8 years old | 19 | 34 |
| Children 9-13 years old | 13 | 23 |
| Non-pregnant women 14 years & above | 11 | 20 |
| Pregnant Women | 10 | 18 |
| Lactating Women | 6 | 11 |
| Men 14 years old & above | 8 | 15 |

Note: Small buns (60 gms) more often purchased by children than adults; medium-sized (110 gms) more by adults than children. Foods contributing 10% of DRI per serving are considered good sources of vitamin A; those contributing 20% of DRI per serving excellent sources of vitamin A.

## TABLE 3.28

**COMPARISON OF GOLDEN BREAD WITH WHITE BREAD: PREFERENCES OF INTERVIEWEES HAVING PURCHASED GOLDEN BREAD**

| | | ENTIRE SAMPLE (N=55) | | MARKET | | | | SEX OF INTERVIEWEE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | LUALUA (N=30) | | LICUAR (N=25) | | MAN | | WOMAN | |
| | | Count | Col % | Count | Col % | Count | Col % | Count | Col % | Count | Col % |
| IS GOLDEN BREAD FOR 1000 MT THE SAME SIZE AS WHITE BREAD FOR 1000 MT? | SAME | 5 | 10.6% | 4 | 16.7% | 1 | 4.3% | 3 | 9.4% | 2 | 13.3% |
| | SMALLER | 34 | 72.3% | 13 | 54.2% | 21 | 91.3% | 23 | 71.9% | 11 | 73.3% |
| | LARGER | 8 | 17.0% | 7 | 29.2% | 1 | 4.3% | 6 | 18.8% | 2 | 13.3% |
| GOLDEN BREAD HAS THE SAME, LESS, OR MORE WEIGHT THAN WHITE? | SAME | 3 | 6.4% | 0 | .0% | 3 | 13.0% | 0 | .0% | 3 | 20.0% |
| | LESS | 2 | 4.3% | 2 | 8.3% | 0 | .0% | 1 | 3.1% | 1 | 6.7% |
| | MORE | 42 | 89.4% | 22 | 91.7% | 20 | 87.0% | 31 | 96.9% | 11 | 73.3% |
| WHICH DO YOU PREFER: A HEAVY OR LIGHT BREAD? | HEAVY | 37 | 78.7% | 21 | 87.5% | 16 | 69.6% | 28 | 87.5% | 9 | 60.0% |
| | LIGHT | 6 | 12.8% | 2 | 8.3% | 4 | 17.4% | 2 | 6.3% | 4 | 26.7% |
| | THERE IS NO PREFERENCE | 4 | 8.5% | 1 | 4.2% | 3 | 13.0% | 2 | 6.3% | 2 | 13.3% |
| DO YOU PREFER THE COLOR OF GOLDEN BREAD OR WHITE BREAD? | GOLDEN BREAD | 46 | 97.9% | 24 | 100.0% | 22 | 95.7% | 32 | 100.0% | 14 | 93.3% |
| | THERE IS NO DIFFERENCE | 1 | 2.1% | 0 | .0% | 1 | 4.3% | 0 | .0% | 1 | 6.7% |
| DO YOU PREFER THE TASTE OF GOLDEN BREAD OR WHITE BREAD? | GOLDEN BREAD | 40 | 85.1% | 24 | 100.0% | 16 | 69.6% | 29 | 90.6% | 11 | 73.3% |
| | WHITE BREAD | 6 | 12.8% | 0 | .0% | 6 | 26.1% | 3 | 9.4% | 3 | 20.0% |
| | THERE IS NO DIFFERENCE | 1 | 2.1% | 0 | .0% | 1 | 4.3% | 0 | .0% | 1 | 6.7% |
| OVERALL, DO YOU PREFER GOLDEN BREAD OR WHITE BREAD? | GOLDEN BREAD | 43 | 91.5% | 24 | 100.0% | 19 | 82.6% | 31 | 96.9% | 12 | 80.0% |
| | WHITE BREAD | 3 | 6.4% | 0 | .0% | 3 | 13.0% | 1 | 3.1% | 2 | 13.3% |
| | THERE IS NO DIFFERENCE | 1 | 2.1% | 0 | .0% | 1 | 4.3% | 0 | .0% | 1 | 6.7% |

Rapid Assessment of Consumer Attitudes towards Golden Bread conduced in February 2005. Of 112 approached for interview, 48 (42%) had never heard of golden bread. 55 persons (37 men, 18 women) heard of golden bread and agreed to be interviewed. 47 had purchased golden bread.

TABLE 3.29

**EXPECTED FREQUENCY OF PURCHASE OF GOLDEN BREAD COMPARED TO CURRENT PURCHASE OF WHITE BREAD**

| | | ENTIRE SAMPLE (N=55) | | MARKET | | | | SEX OF INTERVIEWEE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | LUALUA (N=30) | | LICUAR (N=25) | | MAN | | WOMAN | |
| | | Count | Col % | Count | Col % | Count | Col % | Count | Col % | Count | Col % |
| IF GOLDEN BREAD WAS AVAILABLE DAILY, FREQUENCY OF PURCHASE: | EVERY DAY | 24 | 51.1% | 15 | 62.5% | 9 | 39.1% | 19 | 59% | 5 | 33.3% |
| | 5 DAYS PER WEEK | 2 | 4.3% | 1 | 4.2% | 1 | 4.3% | 2 | 6.3% | 0 | .0% |
| | 3 DAYS PER WEEK | 11 | 23.4% | 8 | 33.3% | 3 | 13.0% | 7 | 22% | 4 | 26.7% |
| | ALWAYS AS NECESSARY | 4 | 8.5% | 0 | .0% | 4 | 17.4% | 2 | 6.3% | 2 | 13.3% |
| | WHENEVER HAS FUNDS TO DO SO | 4 | 8.5% | 0 | .0% | 4 | 17.4% | 2 | 6.3% | 2 | 13.3% |
| | LACK OF MONEY/DO NOT KNOW | 2 | 4.2% | 0 | .0% | 2 | 8.6% | 0 | .0% | 2 | 13.4% |
| FREQUENCY OF PURCHASE OF WHITE BREAD AT PRESENT TIME | EVERY DAY | 11 | 23.4% | 6 | 25.0% | 5 | 21.7% | 8 | 25% | 3 | 20.0% |
| | 5 DAYS PER WEEK | 2 | 4.3% | 1 | 4.2% | 1 | 4.3% | 1 | 3.1% | 1 | 6.7% |
| | 3 DAYS PER WEEK | 4 | 8.5% | 2 | 8.3% | 2 | 8.7% | 3 | 9.4% | 1 | 6.7% |
| | 2 DAYS PER WEEK | 10 | 21.3% | 9 | 37.5% | 1 | 4.3% | 6 | 19% | 4 | 26.7% |
| | 4 DAYS PER WEEK | 4 | 8.5% | 3 | 12.5% | 1 | 4.3% | 4 | 13% | 0 | .0% |
| | DO NOT BUY WHITE BREAD | 1 | 2.1% | 1 | 4.2% | 0 | .0% | 1 | 3.1% | 0 | .0% |
| | WHENEVER GOLDEN BREAD IS NOT AVAILABLE | 3 | 6.4% | 2 | 8.3% | 1 | 4.3% | 3 | 9.4% | 0 | .0% |
| | WHENEVER I HAVE MONEY | 5 | 10.6% | 0 | .0% | 5 | 21.7% | 3 | 9.4% | 2 | 13.3% |
| | AMOST ALWAYS | 1 | 2.1% | 0 | .0% | 1 | 4.3% | 1 | 3.1% | 0 | .0% |
| | IT IS REDUCED | 4 | 8.5% | 0 | .0% | 4 | 17.4% | 2 | 6.3% | 2 | 13.3% |
| | LACK OF MONEY | 1 | 2.1% | 0 | .0% | 1 | 4.3% | 0 | .0% | 1 | 6.7% |

Rapid Assessment of Consumer Attitudes towards Golden Bread conduced in February 2005. Of 112 approached for interview, 48 (42%) had never heard of golden bread. 55 persons (37 men, 18 women) heard of golden bread and agreed to be interviewed.

**TABLE 4.1**
**SOURCES OF ADVICE CONCERNING DIETARY PRACTICES AND HEALTH PROBLEMS FOR PRINCIPLE WOMEN AND MEN IN THE STUDY AREAS AT BASELINE: PERCENT REPORTING RECEIVING ADVICE FROM SOURCE**

| | STUDY AREA | | | |
|---|---|---|---|---|
| | PRINCIPLE WOMEN | | PRINCIPLE MEN | |
| | INTERVENTION | CONTROL | INTERVENTION | CONTROL |
| | N=584 | N=290 | N=493 | N=235 |
| **ADVICE ON DIETARY PRACTICES FROM:** | | | | |
| ONE'S OWN SELF | 33.0% | 36.6% | 34.1% | 36.8% |
| SPOUSE | 11.3% | 16.2% | 16.6% | 17.9% |
| ONE'S OWN MOTHER | 53.8% | 60.7% | 53.8% | 53.8% |
| GRANDPARENT | 11.5% | 10.7% | 7.9% | 8.5% |
| AUNT | 7.4% | 8.3% | 3.7% | 7.7% |
| ONE'S MOTHER-IN-LAW | 26.9% | 23.1% | 24.1% | 18.4% |
| SISTER OR SISTER-IN-LAW | 6.8% | 5.5% | 6.3% | 5.1% |
| FATHER OR UNCLE | 6.5% | 7.2% | 9.5% | 9.4% |
| HEALTH FACILITY | 16.8% | 10.0% | 13.0% | 9.4% |
| FRIEND | 5.8% | 3.4% | 5.1% | 6.4% |
| TRADITIONAL HEALER | 2.6% | 1.4% | 2.8% | 0.9% |
| HEALTH VOLUNTEER | 2.9% | 1.0% | 2.6% | 1.3% |
| OTHER SOURCE | 0.7% | 0.3% | 0.8% | 0.4% |
| **ADVICE ON HEALTH PROBLEMS FROM:** | | | | |
| ONE'S OWN SELF | 45.9% | 52.4% | 56.2% | 65.4% |
| SPOUSE | 47.4% | 45.2% | 39.8% | 39.7% |
| ONE'S OWN MOTHER | 37.8% | 48.6% | 35.1% | 41.9% |
| GRANDPARENT | 8.0% | 9.3% | 6.5% | 6.0% |
| AUNT | 3.9% | 5.9% | 2.6% | 4.7% |
| ONE'S MOTHER-IN-LAW | 17.3% | 14.8% | 11.2% | 11.5% |
| SISTER OR SISTER-IN-LAW | 2.7% | 2.8% | 4.3% | 4.3% |
| FATHER OR UNCLE | 9.6% | 5.2% | 9.3% | 10.3% |
| HEALTH FACILITY | 33.2% | 29.3% | 36.9% | 29.9% |
| FRIEND | 5.3% | 2.8% | 5.3% | 5.6% |
| TRADITIONAL HEALER | 12.2% | 7.6% | 14.6% | 12.8% |
| HEALTH VOLUNTEER | 0.7% | 0.3% | 0.8% | 0.4% |
| OTHER SOURCE | 0.2% | 0.7% | 0.4% | 0.0% |

Note: Respondents could cite more than one category of person from whom advice is sought.

**TABLE 4.2**
**PARTICIPATION OF PRINCIPLE MEN IN TSNI SURVEY AT BASELINE (BS) AND AT ROUND 4 (R4)**

| | | STUDY AREA | | | | ENTIRE SAMPLE | |
|---|---|---|---|---|---|---|---|
| | | .INTERVENTION | | CONTROL | | | |
| | | Count | Col % | Count | Col % | Count | Col % |
| PRESENCE OF NUTRITIONAL KNOWLEDGE INTERVIEW FOR PRINCIPLE MALE | 1 SAME MAN IN BASELINE & FINAL ROUND | 394 | 79.1% | 172 | 70.8% | 566 | 76.4% |
| | 2 PRINCIPAL MALE EXISTS BUT DIFFERS IN BS & R4 | 4 | .8% | | | 4 | .5% |
| | 3 PRINCIPAL MAN APPEARS ONLY IN BASELINE | 33 | 6.6% | 24 | 9.9% | 57 | 7.7% |
| | 4 PRINCIPAL MAN APPEARS ONLY IN ROUND 4 | 16 | 3.2% | 12 | 4.9% | 28 | 3.8% |
| | 5 THERE WAS NEVER A PRINCIPLE MAN | 49 | 9.8% | 33 | 13.6% | 82 | 11.1% |
| | 6 PRINCIPLE MAN EXISTS ONLY IN R4 BUT REFUSED | 2 | .4% | 1 | .4% | 3 | .4% |
| | 7 PRINCIPAL MAN EXISTS ONLY IN BASELINE BUT REFUSED | | | 1 | .4% | 1 | .1% |
| ENTIRE SAMPLE | | 498 | 100.0% | 243 | 100.0% | 741 | 100.0% |

## TABLE 4.3 ASSESSMENT OF CHANGE IN NUTRITIONAL KNOWLEDGE AMONG PRINCIPLE CAREGIVERS OF THE REFERENCE CHILD BETWEEN BASELINE AND THE END OF THE STUDY

| | PRINCIPLE FEMALE CAREGIVER | | | | | | PRINCIPLE MALE CAREGIVER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N= 740 | | | | | | N=566 | | | | | |
| Percent of respondents Reporting that: | BASELINE | | | END OF STUDY | | | BASELINE | | | END OF STUDY | | |
| **VITAMIN A:** | INTERV. | CONTROL | p-value | INTERV. | CONTROL | p-value | INTERV. | CONTROL | p-value | INTERV. | CONTROL | p-value |
| Have heard of Vitamin A | 87.9 | 91.4 | 0.160 | 99.8 | 95.5 | 0.000 | 91.4 | 91.3 | 0.972 | 100.0 | 97.1 | 0.001 |
| *Of those who have heard of Vitamin A, percent mentioning that:* | | | | | | | | | | | | |
| Vitamin A protects body against disease | 12.4 | 9.0 | 0.268 | 58.7 | 13.4 | 0.000 | 16.9 | 15.9 | 0.773 | 36.3 | 18.0 | 0.000 |
| Vitamin A protects the eyes | 0.5 | 0.5 | 0.985 | 33.5 | 2.2 | 0.000 | 2.8 | 1.3 | 0.296 | 17.8 | 1.2 | 0.000 |
| Another correct fact about vitamin A | 57.7 | 62.6 | 0.107 | 83.5 | 75.4 | 0.000 | 72.2 | 75.2 | 0.544 | 85.8 | 88.0 | 0.920 |
| **BREASTFEEDING:** | | | | | | | | | | | | |
| Colostrum is good for the new baby | 42.5 | 39.1 | 0.383 | 90.3 | 40.3 | 0.000 | 41.9 | 29.7 | 0.006 | 78.7 | 47.7 | 0.002 |
| Non-breast milk liquids not good for infants under 4 months old | 10.1 | 5.3 | 0.031 | 48.1 | 14.8 | 0.000 | 8.4 | 11.0 | 0.312 | 35.0 | 19.8 | 0.000 |
| Good for ill mother to continue breastfeeding | 17.1 | 23,0 | 0.053 | 69.2 | 32.1 | 0.000 | 9.9 | 7.6 | 0.375 | 31.0 | 22.1 | 0.031 |
| Good for pregnant mother to continue breastfeeding | 1.8 | 1.6 | 0.873 | 71.2 | 2.9 | 0.000 | 2.5 | 3.5 | 0.530 | 43.4 | 5.8 | 0.000 |
| Good to feed breast milk that has been in the breast some time | 4 | 4.9 | 0.566 | 51.7 | 10.3 | 0.000 | 3.0 | 7.0 | 0.033 | 29.2 | 14.0 | 0.000 |
| **FEEDING PRACTICES:** | | | | | | | | | | | | |
| Child starts eating other foods at four months or more of age | 73.2 | 73.6 | 0.860 | 86.3 | 78.3 | 0.013 | 65.5 | 65.1 | 0.933 | 69.5 | 80.8 | 0.005 |
| Crawling children should eat 3 or more meals daily | 15.3 | 16.8 | 0.580 | 64.4 | 27.5 | 0.000 | 70.8 | 63.4 | 0.503 | 51.8 | 33.7 | 0.000 |
| Children 2 years of age should eat 4 or more meals or snacks daily | 8.8 | 11.2 | 0.327 | 59.0 | 39.1 | 0.000 | 12.4 | 9.9 | 0.384 | 49.5 | 44.2 | 0.245 |
| Mean Nutritional Knowledge Index (12 points highest score possible)* | 3.2 | 3.3 | 0.315 | 8.1 | 4.3 | 0.000 | 3.4 | 3.3 | 0.293 | 6.3 | 4.7 | 0.000 |

Note: *No significant difference in means (t-test) existed between nutritional knowledge index for intervention and control women at baseline (p=.315) or between intervention and control men at baseline (p=0.293). Difference between areas significant among men and women at end of study (p=0.000). Paired t-tests indicate significant differences (p=0.000) between intervention women at baseline and at the end of the study, between control women at baseline and at the end of the study, between intervention men at baseline and at the end of the study, and between control men at baseline and at the end of the study. P-values for individual components making up index are derived from Pearson's Chi-squared (2-sided) test.
Sample of 740 female caregivers consists of 497 women from intervention areas and 243 women from control areas. Sample of 566 principle males represents those men present both at baseline and at the end of the study (round 4), of which 394 are from intervention households and 172 from control households.

**FIGURE 4.1 PERCENT OF WOMEN AND MEN CORRECTLY NAMING THREE VITAMIN A RICH FOODS AND THREE GOOD SOURCES OF FAT AT THE END OF THE SURVEY (ROUND 4) BY AREA**

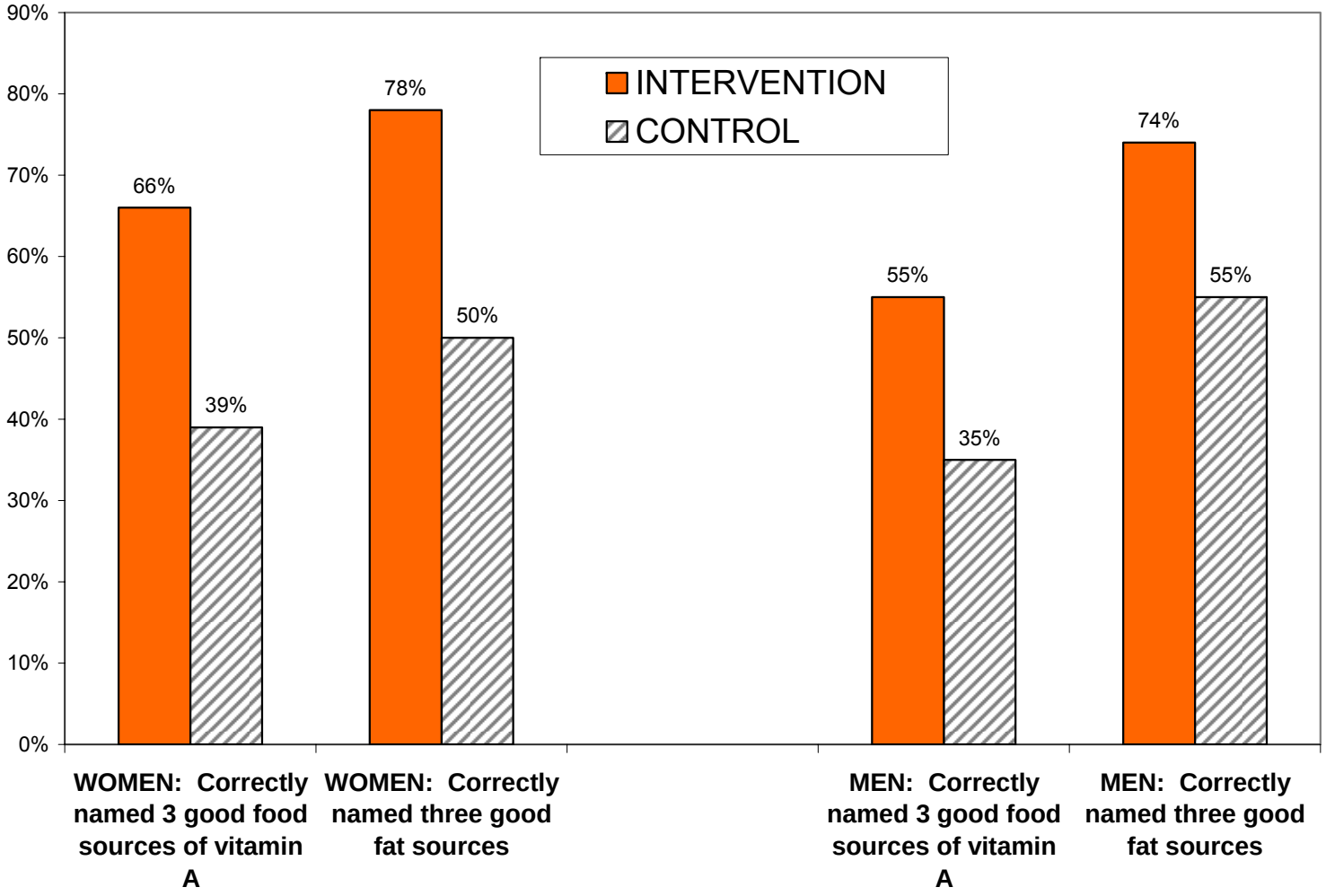
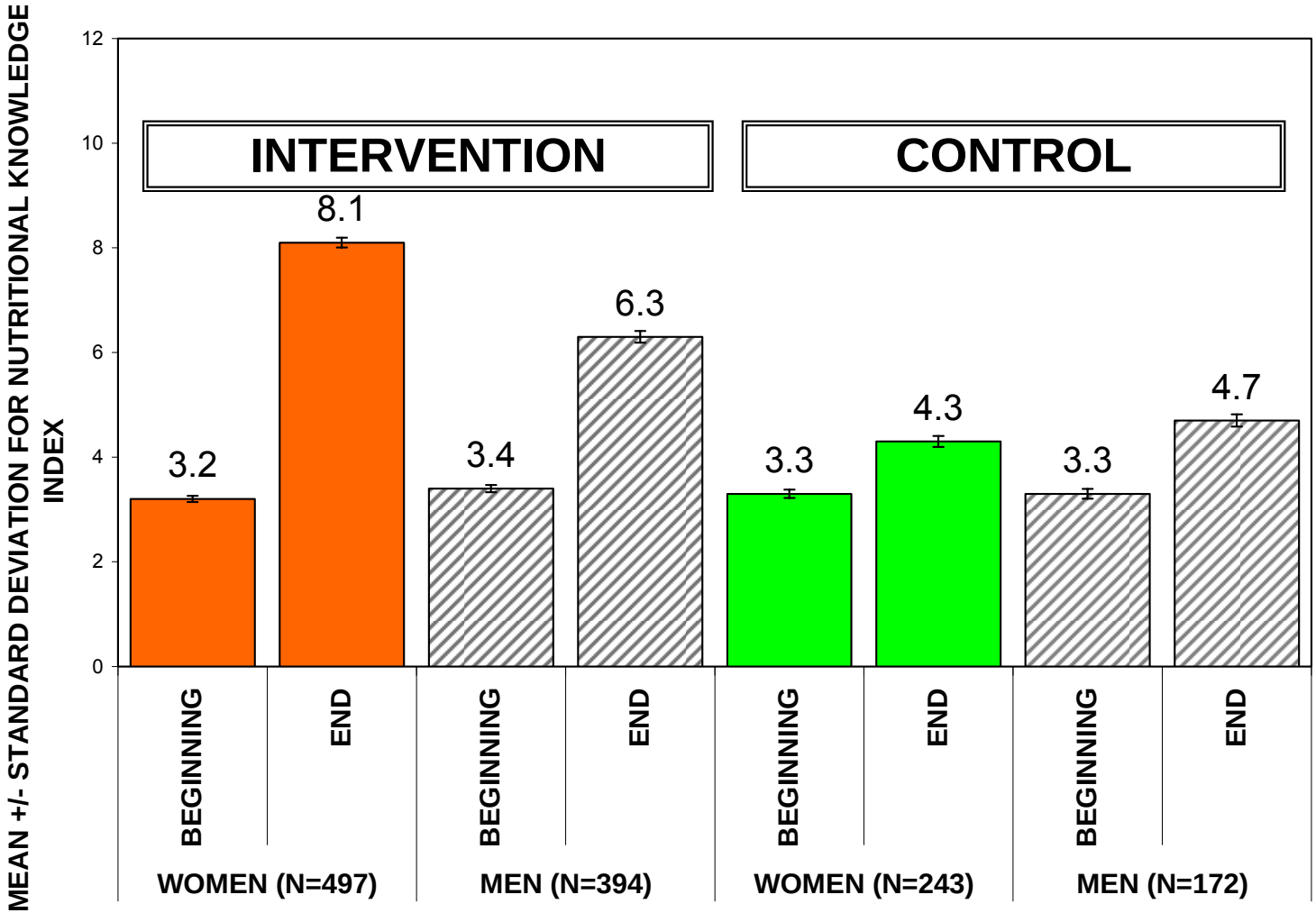


**FIGURE 4.2 NUTRITIONAL KNOWLEDGE SCORES OF PRINCIPAL MEN AND WOMEN AT THE BEGINNING AND END OF THE STUDY: MEANS AND STANDARD DEVIATIONS (12 MAXIMUM POSSIBLE VALUE)**



## TABLE 4.4 DESCRIPTION OF VARIABLES INCLUDE IN CHANGE IN NUTRITIONAL KNOWLEDGE MODEL FOR WOMEN IN INTERVENTION AREAS

**Descriptive Statistics**

| | MEAN | STD DEVIATION | N |
|---|---|---|---|
| CHANGE IN NUTRITIONAL KNOWLEDGE SCORE BETWEEN RD1 & RD4 | 4.92 | 2.21 | 497 |
| RECEIVED HOME VISITS IN ADDITION TO GROUP SESSIONS | .51 | .50 | 497 |
| NUMBER OF NUTRITION SESSIONS FEMALE CAREGIVER ATTENDED | 7.81 | 2.74 | 497 |
| FORMAL EDUCATION: WOMAN WT 1-4 YRS PRIMARY | .32 | .47 | 497 |
| FORMAL EDUCATION: WOMAN WT 5-7 YRS FORMAL SCHOOLING | .07 | .25 | 497 |
| AT BASELINE NO RESIDENT PRINCIPLE MALE | .14 | .34 | 497 |
| AT BASELINE, HH HAS AT LEAST 1 RADIO | .32 | .47 | 497 |
| BS: WOMAN 25 YEARS OF AGE OR OLDER | .62 | .49 | 497 |
| BS: WOMAN WITH LOW BODY MASS INDEX (<18.5 KGS PER SQ METER) | .18 | .38 | 497 |
| WOMAN BORN IN VILLAGE WHERE RESIDES | .67 | .47 | 497 |
| WOMAN OLDEST AMONG OWN SIBLINGS | .26 | .44 | 497 |
| BS: WOMAN ACTIVE IN RELIGIOUS ACTIVITIES | .74 | .44 | 497 |
| BS: WOMAN SOLD AGRICULTURAL/LIVESTOCK PRODUCTS IN 2002 | .39 | .49 | 497 |
| BS: WOMAN ENGAGED IN CASUAL LABOR IN 2002 | .27 | .45 | 497 |
| BS: WOMAN ENGAGED IN PETTY TRADE IN 2002 | .04 | .21 | 497 |
| BS: NUTRITIONAL KNOWLEDGE INDEX FOR PRINCIPLE WOMEN | 3.22 | 1.34 | 497 |

## TABLE 4.5 SUMMARY OF FIT STATISTICS FOR CHANGE IN NUTRITIONAL KNOWLEDGE MODEL

**Model Summary** [b]

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .537[a] | .288 | .266 | 1.89021 | .288 | 12.975 | 15 | 481 | .000 | 1.818 |

a. Predictors: (Constant), BS: NUTRITIONAL KNOWLEDGE INDEX FOR PRINCIPLE WOMEN, WOMAN BORN IN VILLAGE WHERE RESIDES, WOMAN OLDEST AMONG OWN SIBLINGS, BS: WOMAN ENGAGED IN CASUAL LABOR IN 2002, BS: WOMAN ENGAGED IN PETTY TRADE IN 2002, BS: WOMAN 25 YEARS OF AGE OR OLDER, TYPE OF NUTRITION INTERVENTION GROUP, BS: WOMAN WITH LOW BODY MASS INDEX (<18.5 KGS PER SQ METER), FORMAL EDUCATION: WOMAN WT 1-4 YRS PRIMARY, NUMBER OF NUTRITION SESSIONS FEMALE CAREGIVER ATTENDED, BS: WOMAN SOLD AGRICULTURAL/LIVESTOCK PRODUCTS IN 2002, AT BASELINE, HH HAS AT LEAST 1 RADIO, BS: WOMAN ACTIVE IN RELIGIOUS ACTIVITIES, FORMAL EDUCATION: WOMAN WT 5-7 YRS FORMAL SCHOOLING, AT BASELINE NO RESIDENT PRINCIPLE MALE

b. Dependent Variable: CHANGE IN NUTRITIONAL KNOWLEDGE SCORE BETWEEN RD1 & RD4

## TABLE 4.6 RESULTS FROM REGRESSION MODEL FOR CHANGE IN NUTRITIONAL KNOWLEDGE SCORE IN INTERVENTION AREAS

**Coefficients [a]**

| | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | t | Sig. |
| (Constant) | 4.535 | .398 | | 11.400 | .000 |
| RECEIVED HOME VISITS IN ADDITION TO GROUP SESSIONS | -.140 | .173 | -.032 | -.808 | .420 |
| NUMBER OF NUTRITION SESSIONS FEMALE CAREGIVER ATTENDED | .304 | .032 | .377 | 9.484 | .000 |
| FORMAL EDUCATION: WOMAN WT 1-4 YRS PRIMARY | .118 | .189 | .025 | .622 | .534 |
| FORMAL EDUCATION: WOMAN WT 5-7 YRS FORMAL SCHOOLING | -.156 | .362 | -.018 | -.432 | .666 |
| AT BASELINE NO RESIDENT PRINCIPLE MALE | -.280 | .267 | -.044 | -1.047 | .296 |
| AT BASELINE, HH HAS AT LEAST 1 RADIO | -.043 | .190 | -.009 | -.227 | .820 |
| BS: WOMAN 25 YEARS OF AGE OR OLDER | .195 | .180 | .043 | 1.084 | .279 |
| BS: WOMAN WITH LOW BODY MASS INDEX (<18.5 KGS PER SQ METER) | .062 | .225 | .011 | .274 | .784 |
| WOMAN BORN IN VILLAGE WHERE RESIDES | -.189 | .185 | -.040 | -1.024 | .306 |
| WOMAN OLDEST AMONG OWN SIBLINGS | .041 | .196 | .008 | .209 | .834 |
| BS: WOMAN ACTIVE IN RELIGIOUS ACTIVITIES | .070 | .202 | .014 | .344 | .731 |
| BS: WOMAN SOLD AGRICULTURAL/LIVESTOCK PRODUCTS IN 2002 | .087 | .179 | .019 | .486 | .627 |
| BS: WOMAN ENGAGED IN CASUAL LABOR IN 2002 | .079 | .202 | .016 | .394 | .694 |
| BS: WOMAN ENGAGED IN PETTY TRADE IN 2002 | .052 | .421 | .005 | .124 | .901 |
| BS: NUTRITIONAL KNOWLEDGE INDEX FOR PRINCIPLE WOMEN | -.625 | .066 | -.381 | -9.404 | .000 |

[a]. Dependent Variable: CHANGE IN NUTRITIONAL KNOWLEDGE SCORE BETWEEN RD1 & RD4

**TABLE 4.7 PRINCIPLE TWO REASONS CITED AS TO WHY GROUP SESSIONS GIVEN BY NUTRITION EXTENSION AGENTS WERE MISSED**

| REASON | N | % |
|---|---|---|
| WOMAN HERSELF WAS ILL | 195 | 56.7 |
| TAKE CARE OF AN ILL PERSON | 90 | 29.9 |
| WAS NOT IN THE VILLAGE | 80 | 23.3 |
| WAS NOT INFORMED | 45 | 13.1 |
| WAS AT THE DEATH | 31 | 9.0 |
| LACK OF TIME/OTHER THINGS TO DO | 28 | 8.1 |
| WAS IN THE FIELD | 12 | 3.5 |
| LACK OF INTEREST | 9 | 2.6 |
| HAD A FAMILY VISIT | 5 | 1.5 |
| SESSIONS AT AN INCONVENIENT TIME | 3 | 0.9 |
| MEETING PLACE IS VERY FAR FROM MY HOUSE | 3 | 0.9 |
| GONE TO VISIT RELATIVES | 3 | 0.9 |
| BECAUSE OF THE NEW PREGNANCY | 3 | 0.9 |
| WAS IN CHURCH | 3 | 0.9 |
| LAZINESS | 1 | 0.3 |
| THE HOUSE HAD BURNT | 1 | 0.3 |
| CHANGED ZONE | 1 | 0.3 |

NOTE: 344 INTERVENTION WOMEN RESPONDING WHO MISSED TWO OR MORE SESSIONS

## TABLE 4.8

### PERCENT OF HOUSEHOLDS PURCHASING VARIOUS FOODS AT LEAST ONCE DURING THE MAIN HARVEST SEASON (APRIL-SEPTEMBER) BY SURVEY ROUND AND AREA

| FOOD TYPE | ROUND 1 (2003) | | | | ROUND 2 (2004) | | | |
|---|---|---|---|---|---|---|---|---|
| | All % | Intervention % | Control % | P-value* | All % | Intervention % | Control % | P-value* |
| MAIZE FLOUR | 58.8 | 50.4 | 73.7 | 0.001 | 60.2 | 55.6 | 68.4 | 0.079 |
| WHEAT FLOUR | 6.2 | 4.4 | 9.2 | 0.232 | 1.9 $^{+}$ | 1.5 | 2.6 | 0.062 |
| DRY MAIZE IN GRAIN | 10.0 | 6.7 | 15.8 | 0.053 | 7.6 | 8.9 | 5.3 | 0.424 |
| DRY RICE | 20.4 | 15.6 | 28.9 | 0.032 | 32.7$^{++}$ | 25.9$^{+}$ | 44.7$^{+}$ | 0.006 |
| DRY SORGHUM | 0.5 | 0.7 | 0.0 | - | 0.0 | 0.0 | 0.0 | - |
| MAIZE ON THE COB | 29.4 | 25.9 | 35.5 | 0.158 | 25.1 | 24.4 | 26.3 | 0.869 |
| DRY CASSAVA | 5.2 | 2.2 | 10.5 | 0.019 | 1.4 | 2.2 | 0.0$^{+}$ | 0.555 |
| CASSAVA FLOUR | 8.5 | 2.2 | 19.7 | 0.000 | 6.2 | 1.5 | 14.5 | 0.000 |
| FRESH CASSAVA | 7.1 | 3.0 | 14.5 | 0.004 | 3.8 | 0.0 | 10.5 | 0.000 |
| WHITE-FLESH SWEET POTATO | 13.3 | 8.1 | 22.4 | 0.005 | 6.6$^{+}$ | 1.5$^{+}$ | 15.8 | 0.000 |
| YELLOW-FLESH SWEET POTATO | 1.9 | 1.5 | 2.6 | 0.620 | 0.5 | 0.0 | 1.3 | 0.360 |
| ORANGE-FLESH SWEET POTATO | 4.7 | 3.0 | 7.9 | 0.173 | 2.8 | 2.2 | 3.9 | 0.669 |
| IRISH POTATO | 3.3 | 2.2 | 5.3 | 0.255 | 2.8 | 3.7 | 1.3 | 0.422 |
| DRY COWPEA | 30.3 | 21.5 | 46.1 | 0.000 | 22.7 | 16.3 | 34.2 | 0.004 |
| DRY SUGAR BEAN | 53.1 | 47.4 | 63.2 | 0.032 | 53.6 | 43.0 | 72.4 | 0.000 |
| DRY PIGEON PEA | 27.5 | 19.3 | 42.1 | 0.001 | 14.7$^{++}$ | 9.6$^{+}$ | 23.7$^{+}$ | 0.008 |
| OTHER DRY BEAN | 0.9 | 0.7 | 1.3 | 1.000 | 0.0 | 0.0 | 0.0 | - |
| FRESH COWPEA | 1.4 | 2.2 | 0.0 | 0.555 | 0.5 | 0.0 | 1.3 | 0.360 |
| FRESH SUGAR BEAN | 0.5 | 0.7 | 0.0 | 1.000 | 0.9 | 0.0 | 2.6 | 0.129 |
| FRESH PIGEON PEA | 3.3 | 3.7 | 2.6 | 1.000 | 2.8 | 1.5 | 5.3 | 0.191 |
| OTHER FRESH BEAN | 0.9 | 1.5 | 0.0 | 0.537 | 0.0 | 0.0 | 0.0 | - |
| DRY PEANUT | 41.7 | 36.3 | 51.3 | 0.042 | 44.5 | 35.6 | 60.5 | 0.001 |
| FRESH PEANUT | 7.1 | 8.1 | 5.3 | 0.580 | 6.6 | 7.4 | 5.3 | 0.774 |
| SESAME | 7.1 | 5.9 | 9.2 | 0.409 | 3.8 | 5.2 | 1.3 | 0.263 |
| SUNFLOWER | 0.0 | 0.0 | 0.0 | - | 0.5 | 0.7 | 0.0 | 1.000 |
| CASHEW NUT | 2.8 | 1.5 | 5.3 | 0.191 | 0.9 | 0.7 | 1.3 | 1.000 |
| DRY FISH | 94.3 | 93.3 | 96.1 | 0.543 | 95.3 | 94.1 | 97.4 | 0.336 |
| FRESH FISH | 89.1 | 87.4 | 92.1 | 0.362 | 91.5 | 91.9 | 90.8 | 0.801 |
| FRESH PRAWN | 37.9 | 33.3 | 46.1 | 0.077 | 36.5 | 31.9 | 44.7 | 0.074 |
| DRY PRAWN | 67.6 | 54.5 | 90.8 | 0.000 | 67.8 | 58.5 | 84.2 | 0.000 |
| CRAB | 12.4 | 8.1 | 19.7 | 0.017 | 10.4 | 8.9 | 13.2 | 0.354 |
| CHICKEN | 28.4 | 27.4 | 30.3 | 0.751 | 13.3$^{+++}$ | 11.1$^{++}$ | 17.1 | 0.290 |
| BEEF | 5.7 | 4.4 | 7.9 | 0.357 | 3.8 | 4.4 | 2.6 | 0.714 |
| PORK | 23.7 | 28.9 | 14.5 | 0.019 | 15.2$^{+}$ | 17.0$^{+}$ | 11.8 | 0.424 |
| GOAT MEAT | 16.1 | 11.9 | 23.7 | 0.032 | 16.6 | 11.9 | 25.0 | 0.020 |
| GAME MEAT | 23.7 | 29.6 | 13.2 | 0.007 | 25.1 | 31.1 | 14.5 | 0.008 |
| LIVER | 0.5 | 0.7 | 0.0 | 1.000 | 0.9 | 1.5 | 0.0 | 0.537 |
| RAT/FIELD RAT | 19.9 | 24.4 | 11.8 | 0.031 | 15.2 | 21.5 | 3.9 | 0.001 |
| MONKEY | 0.9 | 1.5 | 0.0 | 0.537 | 2.8 | 4.4 | 0.0 | 0.090 |
| RABBIT | 0.5 | 0.7 | 0.0 | 1.000 | 0.5 | 0.7 | 0.0 | 1.000 |
| KALE | 16.6 | 11.9 | 25.0 | 0.020 | 20.4 | 17.8 | 25.0 | 0.218 |
| CABBAGE | 13.3 | 10.4 | 18.4 | 0.138 | 8.5 | 8.9 | 7.9 | 1.000 |
| PUMPKIN | 14.2 | 11.1 | 19.7 | 0.101 | 6.6$^{+}$ | 7.4 | 5.3$^{++}$ | 0.774 |
| CUCUMBER | 0.0 | 0.0 | 0.0 | - | 0.9 | 0.0 | 2.6 | 0.129 |
| CHILLIES | 37.4 | 28.1 | 53.9 | 0.000 | 28.4$^{+}$ | 22.2 | 39.5 | 0.011 |
| CARROT | 0.9 | 0.7 | 1.3 | 1.000 | 0.9 | 0.7 | 1.3 | 1.000 |
| TOMATO | 70.6 | 60.7 | 88.2 | 0.000 | 56.9$^{++}$ | 52.6 | 64.5$^{++}$ | 0.112 |
| ONION | 85.3 | 79.3 | 96.1 | 0.001 | 79.1 | 75.6 | 85.5 | 0.112 |
| OKRA | 12.8 | 8.9 | 19.7 | 0.031 | 2.8$^{+++}$ | 2.2$^{+}$ | 3.9$^{++}$ | 0.669 |
| BANANA | 56.9 | 54.1 | 61.8 | 0.312 | 41.7$^{++}$ | 42.2$^{+}$ | 40.8$^{++}$ | 0.885 |
| PAPAYA | 6.6 | 1.5 | 15.8 | 0.000 | 2.4$^{+}$ | 0.7 | 5.3 | 0.058 |
| MANGO | 0.0 | 0.0 | 0.0 | - | 0.5 | 0.0 | 1.3 | 0.360 |
| ORANGE | 23.2 | 20.0 | 28.9 | 0.174 | 21.3 | 27.4 | 10.5$^{++}$ | 0.005 |
| TANGERINE | 5.7 | 5.9 | 5.3 | 1.000 | 3.8 | 5.2 | 1.3 | 0.263 |
| LEMON | 5.2 | 3.7 | 7.9 | 0.209 | 3.3 | 3.0 | 3.9 | 0.704 |
| PINEAPPLE | 6.2 | 3.7 | 10.5 | 0.071 | 0.0$^{+++}$ | 0.0 | 0.0$^{++}$ | - |
| COCONUT/COCONUT MILK | 74.4 | 69.6 | 82.9 | 0.048 | 71.6 | 68.9 | 76.3 | 0.270 |
| BEER - BOTTLE/CAN | 5.7 | 5.9 | 5.3 | 1.000 | 8.5 | 6.7 | 11.8 | 0.208 |
| WINE - BOTTLED | 0.9 | 0.7 | 1.3 | 1.000 | 1.4 | 0.0 | 3.9 | 0.046 |
| GRAIN ALCOHOL | 1.4 | 0.0 | 3.9 | 0.046 | 0.5 | 0.7 | 0.0 | 1.000 |
| ALCOHOL MADE FROM MAIZE WASTE | 2.8 | 3.7 | 1.3 | 0.422 | 1.4 | 1.5 | 1.3 | 1.000 |
| ALCOHOL FROM COCONUT TREE | 24.6 | 25.2 | 23.7 | 0.869 | 10.0$^{+++}$ | 9.6$^{++}$ | 10.5$^{+}$ | 0.815 |
| OTHER TRADITIONAL ALCOHOLIC DRINK | 0.5 | 0.0 | 1.3 | 0.360 | 0.5 | 0.0 | 1.3 | 0.360 |
| CANE GRAIN ALCOHOL - KACHASU | 24.6 | 20.7 | 31.6 | 0.096 | 27.0 | 26.7 | 27.6 | 0.873 |

SAMPLE SIZE: INTERVENTION=135 CONTROL=76

Except for Round 1 in the Intervention area, Fresh Pigeon Pea = 134. This questionnaire could not be located during analysis

*Comparing intervention area to control area within each round (Chi-square test; Fisher's exact two tailed)

$^{+}$p<0.05; $^{++}$p<0.01;$^{+++}$p<0.001; Comparing Round 1 to Round 2 for specific columns (McNemar's Test for two related paired samples; two tailed)

## TABLE 4.9

**PERCENT OF HOUSEHOLDS PURCHASING VARIOUS FOODS AT LEAST ONCE DURING THE MONTH PRIOR TO SURVEY BY SURVEY ROUND AND AREA**

| FOOD TYPE | ROUND 1 (2003) | | | | ROUND 2 (2004) | | | |
|---|---|---|---|---|---|---|---|---|
| | All % | Intervention % | Control % | P-value | All % | Intervention % | Control % | P-value |
| BREAD | 62.6 | 62.2 | 63.2 | 1.000 | 50.2$^{+}$ | 45.2$^{+}$ | 59.2 | 0.062 |
| EGGS | 5.2 | 3.7 | 7.9 | 0.209 | 3.3 | 3.0 | 3.9 | 0.704 |
| POWDERED MILK | 0.9 | 1.5 | 0.0 | - | 0.0 | 0.0 | 0.0 | - |
| CONDENSED MILK | 3.8 | 3.7 | 3.9 | 1.000 | 3.8 | 3.0 | 5.3 | 0.462 |
| YOUNG COCONUT (WATER) | 12.3 | 8.9 | 18.4 | 0.051 | 3.3$^{+++}$ | 3.0 | 3.9$^{+}$ | 0.704 |
| SUGAR | 64.9 | 67.9 | 60.5 | 0.367 | 71.1 | 71.9 | 69.7 | 0.753 |
| CANDY | 8.1 | 7.4 | 9.2 | 0.793 | 7.6 | 8.1 | 6.6 | 0.791 |
| HONEY | 0.5 | 0.7 | 0.0 | - | 0.0 | 0.0 | 0.0 | - |
| BISCUIT | 51.7 | 54.1 | 47.4 | 0.390 | 58.3 | 64.4 | 47.4 | 0.019 |
| OIL | 55.0 | 57.0 | 51.3 | 0.472 | 65.9$^{+}$ | 63.7 | 69.7$^{+}$ | 0.450 |
| SOFT DRINK-BOTTLED | 7.1 | 7.4 | 6.6 | 1.000 | 8.1 | 7.4 | 9.2 | 0.793 |
| TEA | 1.4 | 1.5 | 1.3 | 1.000 | 0.9 | 1.5 | 0.0 | - |
| JUICE-SPECIFY | 19.4 | 22.2 | 14.5 | 0.206 | 1.9$^{+++}$ | 0.0$^{+++}$ | 5.3 | - |
| SALT | 94.3 | 94.1 | 94.7 | 1.000 | 97.6 | 97.0 | 98.7 | 0.656 |

Sample Size: Intervention=135, Control=76

*Comparing intervention area to control area within each round (Chi-square test; Fisher's exact two tailed)

$^{+}$p<0.05;$^{+++}$p<0.001; Comparing Round 1 to Round 2 for specific columns (McNemar's Test for two related paired samples; two tailed)

## TABLE 4.10

**AVERAGE AMOUNT OF MONEY SPENT PER HOUSHOLD PER MONTH ON ALL PURCHASED FOODS SINCE THE BEGINNING OF THE MAJOR HARVEST SEASON BY SURVEY ROUND AND AREA ( IN CONTOS (THOUSANDS OF METICALS))**

| | ROUND 1 (2003) | | | | ROUND 2 (2004) | | | |
|---|---|---|---|---|---|---|---|---|
| | All (n=211) | Intervention (n=135) | Control (n=76) | P-value* | All (n=211) | Intervention (n=135) | Control (n=76) | P-value* |
| MEAN | 254.9 | 225.8 | 306.6 | 0.464 | 292.1$^{+++}$ | 270.9$^{+}$ | 329.8 $^{+}$ | 0.103 |
| STANDARD DEVIATION | 321.8 | 184.9 | 474.0 | | 226.4 | 203.4 | 259.5 | |
| MEDIAN | 193.0 | 186.8 | 198.4 | 0.464 | 236.6$^{+++}$ | 223.5$^{+}$ | 256.9$^{+}$ | 0.103 |
| PERCENTILE | | | | | | | | |
| 25 | 114.3 | 114.5 | 113.9 | | 142.4 | 139.8 | 149.3 | |
| 75 | 301.9 | 289.5 | 316.1 | | 356.4 | 321.2 | 429.3 | |
| | | | | | | | | |

*Comparing intervention area to control area within each round (Mann-Whitney U-Test; two tailed)

$^{+}$p<0.05, $^{+++}$ p<0.001; Comparing Round 1 to Round 2 for specific columns (Wilcoxon's Rank Test; two tailed)

## TABLE 4.11

**AVERAGE AMOUNT OF MONEY SPENT PER HOUSHOLD PER MONTH ON VITAMIN A RICH FOODS DURING THE MAJOR HARVEST SEASON (APRIL-SEPTEMBER) BY SURVEY ROUND AND AREA ( IN THOUSANDS OF METICALS)**

| | ROUND 1 (2003) | | | | ROUND 2 (2003) | | | |
|---|---|---|---|---|---|---|---|---|
| | All (n=211) | Intervention (n=135) | Control (n=76) | P-value* | All (n=211) | Intervention (n=135) | Control (n=76) | P-value* |
| MEAN | 43.5 | 46.0 | 39.1 | 0.168 | 52.8 | 56.4$^{+}$ | 46.5 | 0.103 |
| STANDARD DEVIATION | 40.4 | 42.0 | 37.2 | | 50.4 | 51.7 | 47.7 | |
| MEDIAN | 36.0 | 38.0 | 33.2 | 0.168 | 40.0 | 42.4$^{+}$ | 32.3 | 0.103 |
| PERCENTILE | | | | | | | | |
| 25 | 18.3 | 20.0 | 14.3 | | 20.0 | 20.0 | 16.4 | |
| 75 | 55.0 | 60.0 | 47.6 | | 72.0 | 80.5 | 63.4 | |
| | | | | | | | | |

*Comparing intervention area to control area within each round (Mann-Whitney U-Test; two tailed)

$^{+}$p<0.05; Comparing Round 1 to Round 2 for specific columns (Wilcoxon's Rank Test; two tailed)

Identified Vitamin A Rich Foods Included:

Papaya, Mango, Carrot, Pumpkin,Yellow Flesh Sweet Potato, Orange Flesh Sweet Potato, Pumpkin Leaves, Cassava Leaves, Bean Leaves, Amaranthus Leaves, Sweet Potato leaves, Chill, Guava, Liver, Beef, Pork, Monkey, Kale, Eggs, Fresh Fish, Fresh Prawn, Crab, Fresh Milk, Powdered milk, Condensed Milk

**TABLE 4.12**
**PERCENT OF HOUSEHOLDS PRODUCING VARIOUS FOODS AT LEAST ONCE DURING THE MAIN HARVEST SEASON (APRIL-SEP) BY SURVEY ROUND AND AREA**

| | | ROUND 1 (2003) | | | ROUND 2 (2004) | | |
|---|---|---|---|---|---|---|---|
| | | ALL | INTERVENTION | CONTROL | ALL | INTERVENTION | CONTROL |
| FOOD PRODUCT | | % | % | % | % | % | % |
| | PRODUCED | 38.4% | 47.4% | 22.4% | 37.9% | 43.7% | 27.6% |
| MAIZE FLOUR | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 2.8% | 3.0% | 2.6% | 3.8% | 3.0% | 5.3% |
| WHEAT FLOUR | PRODUCE | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| RICE FLOUR | PRODUCED | 28.0% | 30.4% | 23.7% | 26.1% | 26.7% | 25.0% |
| | PRODUCED | 1.4% | 0.7% | 2.6% | 1.4% | 2.2% | |
| DRY MAIZE IN GRAIN | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.5% | 0.7% | | 0.9% | | 2.6% |
| | PRODUCED | 95.7% | 95.6% | 96.1% | 93.4% | 93.3% | 93.4% |
| DRY RICE | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | 1.5% | | 0.5% | 0.7% | |
| DRY SORGHUM | PRODUCED | 2.4% | 3.0% | 1.3% | 1.9% | 1.5% | 2.6% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.5% | 0.7% | | | | |
| | PRODUCED | 53.1% | 57.0% | 46.1% | 62.1% | 66.7% | 53.9% |
| MAIZE ON THE COB | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 6.6% | 5.2% | 9.2% | 5.7% | 3.0% | 10.5% |
| | PRODUCED | 60.7% | 68.9% | 46.1% | 49.3% | 58.5% | 32.9% |
| DRY CASSAVA | GIVEN AS GIFT OR PAYMENT FOR SERVICE | | | | 0.9% | | 2.6% |
| | PRODUCED | 93.4% | 97.8% | 85.5% | 90.0% | 98.5% | 75.0% |
| CASSAVA FLOUR | GIVEN AS GIFT OR PAYMENT FOR SERVICE | | | | 0.9% | | 2.6% |
| | PRODUCED | 88.6% | 94.8% | 77.6% | 91.9% | 99.3% | 78.9% |
| FRESH CASSAVA | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.9% | 1.5% | 2.6% | 0.5% | | 1.3% |
| WHITE-FLESH SWEET POTATO | PRODUCED | 80.6% | 85.2% | 72.4% | 79.1% | 83.0% | 72.4% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 2.4% | 1.5% | 3.9% | 4.7% | 4.4% | 5.3% |
| YELLOW-FLESH SWEET POTATO | PRODUCED | 21.3% | 31.1% | 3.9% | 17.1% | 21.5% | 9.2% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 3.3% | 3.7% | 2.6% | 1.9% | 2.2% | 1.3% |
| ORANGE-FLESH SWEET POTATO | PRODUCED | 34.6% | 48.9% | 9.2% | 60.2% | 85.2% | 15.8% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 9.5% | 13.3% | 2.6% | 4.3% | 3.7% | 5.3% |
| | PRODUCED | 0.5% | 0.7% | | 2.8% | 3.0% | 2.6% |
| IRISH POTATO | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | 1.5% | | 0.9% | | 2.6% |
| | | | | | | | |

| | | ROUND 1 (2003) | | | ROUND 2 (2004) | | |
|---|---|---|---|---|---|---|---|
| | | ALL | INTERVENTION | CONTROL | ALL | INTERVENTION | CONTROL |
| FOOD PRODUCT | | % | % | % | % | % | % |
| | PRODUCED | 36.0% | 42.2% | 25.0% | 37.0% | 29.6% | 50.0% |
| DRY COWPEA | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 5.2% | 4.4% | 6.6% | 2.8% | 2.2% | 3.9% |
| | PRODUCED | 5.7% | 7.4% | 2.6% | 5.7% | 7.4% | 2.6% |
| DRY SUGAR BEAN | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | 1.5% | | 0.9% | 0.7% | 1.3% |
| | PRODUCED | 43.1% | 54.1% | 23.7% | 31.3% | 23.0% | 46.1% |
| DRY PIGEON PEA | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 4.3% | 3.7% | 5.3% | 0.9% | 0.7% | 1.3% |
| OTHER DRY BEAN | PRODUCED | 2.8% | 4.4% | | 1.4% | 2.2% | |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | 1.5% | | | | |
| | PRODUCED | 41.2% | 48.1% | 28.9% | 44.1% | 42.2% | 47.4% |
| FRESH COWPEA | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.9% | 1.5% | 2.6% | 1.4% | 2.2% | |
| | PRODUCED | 2.4% | 3.7% | | 0.9% | 1.5% | |
| FRESH SUGAR BEAN | GIVEN AS GIFT OR PAYMENT FOR SERVICE | | | | 0.5% | 0.7% | |
| | PRODUCED | 44.8% | 56.7% | 23.7% | 56.9% | 67.4% | 38.2% |
| FRESH PIGEON PEA | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.9% | 2.2% | 1.3% | 0.9% | 1.5% | |
| OTHER FRESH BEAN | PRODUCED | 3.3% | 5.2% | | 1.4% | 2.2% | |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | 0.7% | 1.3% | | | |
| | PRODUCED | 18.5% | 26.7% | 3.9% | 27.0% | 38.5% | 6.6% |
| DRY PEANUT | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 2.8% | 3.7% | 1.3% | 4.7% | 5.9% | 2.6% |
| FRESH PEANUT | PRODUCED | 18.5% | 25.9% | 5.3% | 22.7% | 32.6% | 5.3% |
| | PRODUCED | 3.8% | 3.7% | 3.9% | 7.1% | 11.1% | |
| SESAME | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.9% | 2.2% | 1.3% | 1.4% | 2.2% | |
| SUNFLOWER | PRODUCED | 1.4% | 2.2% | | 0.0% | 0.0% | 0.0% |
| | PRODUCED | 17.1% | 8.9% | 31.6% | 2.4% | 2.2% | 2.6% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | 1.5% | | | | |
| CASHEW NUT | FISHED, HUNTED OR GATHERED WILD | 10.9% | 5.2% | 21.1% | 0.5% | | 1.3% |
| PUMPKIN SEED | PRODUCED | 5.7% | 5.9% | 5.3% | 8.1% | 11.1% | 2.6% |
| CUCUMBER SEED | PRODUCED | 1.4% | 2.2% | | 4.3% | 5.9% | 1.3% |
| | PRODUCED | 5.2% | 6.7% | 2.6% | 3.3% | 5.2% | |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.4% | 2.2% | | 0.9% | 1.5% | |
| DRY FISH | FISHED, HUNTED OR GATHERED WILD | 10.4% | 14.1% | 3.9% | 7.6% | 10.4% | 2.6% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 4.7% | 6.7% | 1.3% | 3.7% | 4.5% | 2.6% |
| FRESH FISH | FISHED, HUNTED OR GATHERED WILD | 38.9% | 40.7% | 35.5% | 29.9% | 31.9% | 26.3% |

| | | ROUND 1 (2003) | | | ROUND 2 (2004) | | |
|---|---|---|---|---|---|---|---|
| | | ALL | INTERVENTION | CONTROL | ALL | INTERVENTION | CONTROL |
| FOOD PRODUCT | | % | % | % | % | % | % |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | 0.7% | 1.3% | 0.5% | | 1.3% |
| FRESH PRAWN | FISHED, HUNTED OR GATHERED WILD | 7.6% | 7.4% | 7.9% | 7.1% | 5.9% | 9.2% |
| | PRODUCED | 1.4% | 1.5% | 1.3% | 0.5% | 0.7% | |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.4% | 2.2% | | 0.5% | 0.7% | |
| DRY PRAWN | FISHED, HUNTED OR GATHERED WILD | 0.5% | | 1.3% | 0.5% | | 1.3% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.4% | 1.5% | 1.3% | 1.9% | 1.5% | 2.6% |
| CRAB | FISHED, HUNTED OR GATHERED WILD | 3.3% | 3.0% | 3.9% | 3.3% | 4.4% | 1.3% |
| | PRODUCED | 79.6% | 83.0% | 73.7% | 71.1% | 77.0% | 60.5% |
| CHICKEN | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 2.8% | 1.5% | 5.3% | 3.3% | 2.2% | 5.3% |
| LITTLE BIRD | FISHED, HUNTED OR GATHERED WILD | 7.1% | 8.9% | 3.9% | 5.7% | 5.2% | 6.6% |
| BEEF | PRODUCED | | | | 0.0% | 0.0% | 0.0% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | | 2.6% | | | |
| | PRODUCED | 4.7% | 6.7% | 1.3% | 2.8% | 4.4% | |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.4% | 2.2% | | 1.4% | 1.5% | 1.3% |
| PORK | FISHED, HUNTED OR GATHERED WILD | 0.9% | 1.5% | | 0.5% | 0.7% | |
| | PRODUCED | 3.8% | 4.4% | 2.6% | 3.8% | 4.4% | 2.6% |
| GOAT MEAT | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 7.6% | 7.4% | 7.9% | 1.4% | | 3.9% |
| | PRODUCED | | | | 0.5% | 0.7% | |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.9% | 3.0% | | 3.8% | 5.2% | 1.3% |
| GAME MEAT | FISHED, HUNTED OR GATHERED WILD | 10.0% | 14.1% | 2.6% | 11.4% | 13.3% | 7.9% |
| | PRODUCED | 5.7% | 8.1% | 1.3% | 3.3% | 4.4% | 1.3% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.5% | | 1.3% | | | |
| LIVER | FISHED, HUNTED OR GATHERED WILD | 3.3% | 4.4% | 1.3% | 5.2% | 8.1% | |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 4.7% | 5.2% | 3.9% | 2.8% | 3.7% | 1.3% |
| RAT/FIELD RAT | FISHED, HUNTED OR GATHERED WILD | 25.1% | 32.6% | 11.8% | 25.1% | 34.8% | 7.9% |
| MONKEY | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.4% | 2.2% | | 4.7% | 6.7% | 1.3% |
| | FISHED, HUNTED OR GATHERED WILD | 3.3% | 5.2% | | | | |
| | PRODUCED | 0.9% | | 2.6% | 0.9% | 0.7% | 1.3% |
| RABBIT | FISHED, HUNTED OR GATHERED WILD | 0.5% | | 1.3% | 0.9% | 0.7% | 1.3% |
| | PRODUCED | 10.0% | 11.9% | 6.6% | 14.7% | 14.1% | 15.8% |
| KALE | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 4.3% | 5.2% | 2.6% | 0.9% | 0.7% | 1.3% |
| | | | | | | | |

| | | ROUND 1 (2003) | | | ROUND 2 (2004) | | |
|---|---|---|---|---|---|---|---|
| | | ALL | INTERVENTION | CONTROL | ALL | INTERVENTION | CONTROL |
| FOOD PRODUCT | | % | % | % | % | % | % |
| | PRODUCED | 6.6% | 9.6% | 1.3% | 1.9% | 2.2% | 1.3% |
| CABBAGE | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 3.8% | 4.4% | 2.6% | 1.9% | 1.5% | 2.6% |
| | PRODUCED | 80.1% | 85.9% | 69.7% | 82.9% | 91.1% | 68.4% |
| PUMPKIN LEAVES | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 6.6% | 4.4% | 10.5% | 4.3% | 3.0% | 6.6% |
| CASSAVA LEAVES | PRODUCED | 93.4% | 93.3% | 93.4% | 91.5% | 92.6% | 89.5% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | 0.7% | 1.3% | | | |
| | PRODUCED | 44.5% | 45.9% | 42.1% | 43.6% | 43.7% | 43.4% |
| BEAN LEAVES | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 2.8% | 3.7% | 1.3% | 4.3% | 3.7% | 5.3% |
| SWEET POTATO LEAVES | PRODUCED | 32.2% | 36.3% | 25.0% | 36.0% | 41.5% | 26.3% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | 0.7% | 1.3% | | | |
| | PRODUCED | 18.5% | 16.3% | 22.4% | 13.7% | 17.0% | 7.9% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 2.4% | 1.5% | 3.9% | | | |
| AMARANTHUS LEAVES | FISHED, HUNTED OR GATHERED WILD | 0.9% | 0.7% | 1.3% | 4.7% | 3.7% | 6.6% |
| | PRODUCED | 65.4% | 80.0% | 39.5% | 74.4% | 83.7% | 57.9% |
| PUMPKIN | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 7.6% | 4.4% | 13.2% | 5.7% | 3.0% | 10.5% |
| | PRODUCED | 7.1% | 9.6% | 2.6% | 7.1% | 8.9% | 3.9% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 2.8% | 3.0% | 2.6% | | | |
| CUCUMBER | FISHED, HUNTED OR GATHERED WILD | 0.5% | | 1.3% | 0.9% | 1.5% | |
| | PRODUCED | 43.6% | 56.3% | 21.1% | 48.8% | 54.1% | 39.5% |
| CHILLIES | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 6.2% | 8.1% | 2.6% | 3.8% | 3.0% | 5.3% |
| CARROT | PRODUCED | 1.4% | 2.2% | | 1.4% | 1.5% | 1.3% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.5% | 0.7% | | | | |
| | PRODUCED | 46.0% | 57.8% | 25.0% | 64.5% | 68.9% | 56.6% |
| TOMATO | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 10.0% | 12.6% | 5.3% | 4.7% | 4.4% | 5.3% |
| | PRODUCED | 2.8% | 4.4% | | 3.3% | 4.4% | 1.3% |
| ONION | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 5.7% | 6.7% | 3.9% | 4.7% | 4.4% | 5.3% |
| | PRODUCED | 21.8% | 19.3% | 26.3% | 23.2% | 25.2% | 19.7% |
| OKRA | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.4% | 1.5% | 1.3% | 1.4% | 2.2% | |
| | PRODUCED | 58.3% | 63.7% | 48.7% | 63.0% | 65.9% | 57.9% |
| BANANA | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 6.2% | 5.9% | 6.6% | 4.7% | 5.2% | 3.9% |
| | PRODUCED | 73.5% | 86.7% | 50.0% | 83.9% | 91.1% | 71.1% |
| PAPAYA | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 13.7% | 8.9% | 22.4% | 6.6% | 2.2% | 14.5% |

| | | ROUND 1 (2003) | | | ROUND 2 (2004) | | |
|---|---|---|---|---|---|---|---|
| | | ALL | INTERVENTION | CONTROL | ALL | INTERVENTION | CONTROL |
| FOOD PRODUCT | | % | % | % | % | % | % |
| MANGO | PRODUCED | 4.3% | 3.0% | 6.6% | | | |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | | | | 0.5% | | 1.3% |
| | PRODUCED | 9.0% | 12.6% | 2.6% | 10.9% | 11.9% | 9.2% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 2.8% | 3.0% | 2.6% | | | |
| ORANGE | FISHED, HUNTED OR GATHERED WILD | 0.5% | 0.7% | | 10.0% | 11.9% | 6.6% |
| | PRODUCED | 1.4% | 2.2% | | 4.3% | 6.7% | |
| TANGERINE | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | | 2.6% | 1.4% | 1.5% | 1.3% |
| | PRODUCED | 20.4% | 21.5% | 18.4% | 9.5% | 12.6% | 3.9% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 12.3% | 15.6% | 6.6% | | | |
| LEMON | FISHED, HUNTED OR GATHERED WILD | 0.5% | 0.7% | | 7.1% | 8.9% | 3.9% |
| PINEAPPLE | PRODUCED | 11.4% | 10.4% | 13.2% | 0.5% | 0.7% | |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.9% | 0.7% | 3.9% | | | |
| AVOCADO | PRODUCED | 0.5% | 0.7% | | 0.5% | 0.7% | |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.5% | | 1.3% | | | |
| | PRODUCED | 5.7% | 6.7% | 3.9% | 3.3% | 3.7% | 2.6% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.9% | 3.0% | | 0.5% | 0.7% | |
| GUAVA | FISHED, HUNTED OR GATHERED WILD | 0.5% | 0.7% | | 0.5% | 0.7% | |
| COCONUT/COCONUT MILK | PRODUCED | 33.2% | 38.5% | 23.7% | 39.8% | 44.4% | 31.6% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 3.8% | 5.2% | 1.3% | 5.2% | 5.2% | 5.3% |
| | PRODUCED | | | | 0.5% | 0.7% | |
| BEER - BOTTLE/CAN | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.9% | 1.5% | 2.6% | 1.9% | 0.7% | 3.9% |
| WINE - BOTTLED | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 2.4% | 2.2% | 2.6% | 0.0% | 0.0% | 0.0% |
| GRAIN ALCOHOL | PRODUCED | 0.9% | 0.7% | 1.3% | 0.0% | 0.0% | 0.0% |
| ALCOHOL MADE FROM MAIZE WASTE | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.5% | | 1.3% | 0.9% | 0.7% | 1.3% |
| | PRODUCED | 1.9% | 3.0% | | 0.9% | 0.7% | 1.3% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 3.3% | 3.7% | 2.6% | | | |
| ALCOHOL FROM COCONUT TREE | FISHED, HUNTED OR GATHERED WILD | 0.9% | 1.5% | | 3.8% | 2.2% | 6.6% |
| | PRODUCED | 8.5% | 11.1% | 3.9% | 6.2% | 8.9% | 1.3% |
| CANE GRAIN ALCOHOL - KACHASU | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.9% | 1.5% | 2.6% | 10.9% | 11.1% | 10.5% |

SAMPLE SIZE: 211 HOUSEHOLDS: INTERVENTION=135; CONTROL=76.

**TABLE 4.13**

## PERCENT OF HOUSEHOLDS PRODUCING VARIOUS FOODS AT LEAST ONCE SINCE THE BEGINNING OF THE MONTH PRIOR TO THE SURVEY

| | | ROUND 1 (2003) | | | ROUND 2 (2004) | | |
|---|---|---|---|---|---|---|---|
| | | ALL | INTERVENTION | CONTROL | ALL | INTERVENTION | CONTROL |
| BREAD | PRODUCED | 0.0% | 0.0% | 0.0% | 0.5% | 0.7% | 0.0% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | 0.7% | 1.3% | 1.9% | 2.2% | 1.3% |
| | PRODUCED | 55.9% | 66.7% | 36.8% | 53.8% | 60.0% | 42.7% |
| EGGS | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 2.4% | 3.0% | 1.3% | 0.5% | 0.7% | 0.0% |
| FRESH MILK | PRODUCED | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| POWDERED MILK | PRODUCED | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| CONDENSED MILK | PRODUCED | 0.0% | 0.0% | 0.0% | 0.9% | 1.5% | 0.0% |
| | PRODUCED | 34.6% | 40.7% | 23.7% | 23.7% | 25.9% | 19.7% |
| YOUNG COCONUT WATER | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 4.7% | 6.7% | 1.3% | 0.9% | 1.5% | 0.0% |
| SUGAR | PRODUCED | 0.0% | 0.0% | 0.0% | 0.5% | 0.7% | 0.0% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.4% | 2.2% | 0.0% | 0.9% | 1.5% | 0.0% |
| CANDY | PRODUCED | 0.0% | 0.0% | 0.0% | 0.5% | 0.7% | 0.0% |
| | PRODUCED | 0.9% | 1.5% | 0.0% | 0.9% | 1.5% | 0.0% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.5% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% |
| HONEY | FISHED, HUNTED OR GATHERED WILD | 0.5% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% |
| BISCUIT | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | 0.7% | 1.3% | 1.4% | 2.2% | 0.0% |
| OIL | PRODUCED | 0.0% | 0.0% | 0.0% | 0.5% | 0.7% | 0.0% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 1.4% | 1.5% | 1.3% | 3.3% | 3.7% | 2.6% |
| SOFT DRINK BOTTLED | PRODUCED | 0.0% | 0.0% | 0.0% | 0.5% | 0.7% | 0.0% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.9% | 1.5% | 0.0% | 0.0% | 0.0% | 0.0% |
| TEA | PRODUCED | 0.5% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% |
| JUICE-SPECIFY | PRODUCED | 0.0% | 0.0% | 0.0% | 0.5% | 0.7% | 0.0% |
| | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 0.5% | 0.7% | 0.0% | 0.5% | 0.7% | 0.0% |
| | PRODUCED | 0.5% | 0.7% | 0.0% | 4.7% | 4.4% | 5.3% |
| SALT | GIVEN AS GIFT OR PAYMENT FOR SERVICE | 8.5% | 5.2% | 14.5% | 20.4% | 18.5% | 23.7% |

## TABLE 5.1

**HOUSEHOLD LEVEL CONSUMPTION OF KEY MACRO- AND MICRO-NUTRIENTS AND PHYTATE PER ADULT EQUIVALENT UNIT (BASED ON PRESENCE AT MEAL, INCLUDING VISITORS) IN FINAL ROUND BY AREA**

| | AREA OF STUDY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | INTERVENTION | | | | | CONTROL | | | | |
| | Mean | Std Deviation | Median | Percentile 25 | Percentile 75 | Mean | Std Deviation | Median | Percentile 25 | Percentile 75 |
| ENERGY (KCAL) | 3110.26 | 1021.49 | 2997.80 | 2357.38 | 3782.05 | 2784.54 | 866.21 | 2680.99 | 2147.20 | 3226.34 |
| PROTEIN (GMS) | 71.78 | 39.12 | 63.48 | 44.57 | 91.37 | 65.94 | 35.29 | 60.65 | 40.67 | 83.84 |
| LIPIDS (GMS) | 38.38 | 28.20 | 33.36 | 16.73 | 54.25 | 36.58 | 29.17 | 31.88 | 11.71 | 53.89 |
| VITAMIN A (MCG RAE) | 1792.56 | 2369.86 | 613.83 | 113.08 | 2945.09 | 286.94 | 543.56 | 86.12 | 47.16 | 319.23 |
| RETINOL (MCG) | 19.83 | 31.92 | 1.73 | .00 | 31.67 | 18.90 | 27.68 | 1.89 | .00 | 31.31 |
| BETA-CAROTENE (MCG) | 18241.20 | 27987.46 | 2864.34 | 286.00 | 32568.38 | 1877.86 | 5842.43 | 114.58 | .11 | 1767.25 |
| VITAMIN C (MG) | 440.11 | 438.79 | 235.94 | 93.77 | 692.87 | 213.21 | 306.99 | 75.01 | 45.49 | 213.26 |
| VITAMIN E (MCG) | 7.20 | 5.99 | 6.20 | 2.24 | 10.63 | 3.69 | 4.29 | 1.77 | .38 | 6.08 |
| VITAMIN K (MCG) | 40.26 | 49.92 | 25.45 | 9.13 | 52.66 | 17.07 | 25.48 | 6.65 | .33 | 25.26 |
| IRON (MG) | 20.37 | 8.72 | 19.04 | 13.65 | 25.41 | 19.22 | 9.56 | 16.91 | 11.87 | 25.32 |
| ZINC (MG) | 10.68 | 4.68 | 9.96 | 7.33 | 13.16 | 9.87 | 4.36 | 8.99 | 6.89 | 12.04 |
| PHYTATE (MG) | 2121.74 | 1362.76 | 1785.10 | 1128.09 | 2800.98 | 2079.77 | 1530.94 | 1730.12 | 1063.98 | 2503.91 |
| CALCIUM (MG) | 1155.10 | 1009.92 | 777.46 | 483.52 | 1524.29 | 1009.75 | 844.64 | 731.09 | 386.62 | 1427.84 |
| SELENIUM (MCG) | 68.94 | 52.22 | 62.43 | 22.99 | 103.73 | 75.19 | 65.66 | 62.37 | 17.34 | 116.55 |
| PHOSPHORUS (MG) | 1761.19 | 894.51 | 1577.59 | 1118.24 | 2197.22 | 1652.76 | 787.40 | 1487.58 | 1055.31 | 2070.92 |
| MAGNESIUM (MG) | 384.99 | 214.16 | 354.51 | 220.06 | 502.97 | 329.48 | 218.05 | 298.99 | 173.51 | 430.23 |
| FOLATE (MCG DIETARY FOLATE EQ) | 766.91 | 566.14 | 686.71 | 294.46 | 1139.59 | 719.62 | 659.48 | 644.97 | 94.89 | 1148.48 |
| THIAMIN (B1) (MG) | 1.60 | .95 | 1.46 | .82 | 2.28 | 1.45 | 1.12 | 1.30 | .47 | 2.16 |
| RIBOFLAVIN (B2) (MG) | .82 | .49 | .74 | .46 | 1.06 | .55 | .32 | .48 | .33 | .71 |
| NIACIN (MG) | 22.73 | 10.99 | 20.58 | 14.57 | 28.91 | 20.73 | 10.58 | 18.80 | 12.21 | 27.03 |
| VITAMIN B6 (MG) | 1.62 | .86 | 1.48 | 1.00 | 2.17 | 1.32 | .80 | 1.23 | .70 | 1.70 |
| VITAMIN B12 (MCG) | 4.57 | 7.04 | .95 | .12 | 7.27 | 4.61 | 5.96 | 1.55 | .27 | 7.50 |

SAMPLE SIZE: 741 TOTAL HOUSEHOLDS: 498 IN INTERVENTION AREAS, 243 IN CONTROL AREAS. DATA COLLECTED IN POST-HARVEST SEASON (AUG-OCT) 2004.

## TABLE 5.2

COMPARISON OF MEDIAN NUTRIENT INTAKE VALUES WITH RECOMMENDED DAILY ALLOWANCES (RDAs) FOR KEY MACRO- AND MICRONUTRIENTS AND MEDIAN INTAKE VALUES BY AREA

| | RDA FOR ADULT EQUIVALENT MALE | AREA | | TEST FOR SIGNIFICANT DIFFERENCE IN DISTRIBUTION (P-VALUES) | INTERVENTION/ CONTROL VALUE | PERCENT DIFFERENCE BETWEEN INTERVENTION & CONTROL AREAS |
|---|---|---|---|---|---|---|
| | | INTERVENTION | CONTROL | | | |
| | | MEDIAN | MEDIAN | | | |
| **ENERGY (KCAL)** | **2928** | **2,997.80** | **2,680.99** | **0.000** | **1.1** | **11.8** |
| PROTEIN (GMS) | 63 | 63.48 | 60.65 | 0.081 | 1.0 | 4.7 |
| LIPIDS (GMS) | | 33.36 | 31.88 | 0.265 | 1.0 | 4.6 |
| **VITAMIN A (MCG RAE)** | **900** | **613.83** | **86.12** | **0.000** | **7.1** | **612.8** |
| RETINOL (MCG) | | 1.73 | 1.89 | 0.691 | 0.9 | -8.5 |
| **BETA-CAROTENE (MCG)** | | **2,864.34** | **114.580** | **0.000** | **25.0** | **2399.9** |
| **VITAMIN C (MG)** | **90** | **235.94** | **75.01** | **0.000** | **3.1** | **214.5** |
| **VITAMIN E (MCG)** | **15** | **6.20** | **1.77** | **0.000** | **3.5** | **250.0** |
| **VITAMIN K (MCG)** | **120** | **25.45** | **6.65** | **0.000** | **3.8** | **282.9** |
| **IRON (MG)** | **8** | **19.04** | **16.91** | **0.029** | **1.1** | **12.6** |
| **ZINC (MG)** | **11** | **9.96** | **8.99** | **0.014** | **1.1** | **10.9** |
| PHYTATE (MG) | | 1,785.10 | 1,730.12 | 0.317 | 1.0 | 3.2 |
| **CALCIUM (MG)** | **1000** | **777.46** | **731.09** | **0.046** | **1.1** | **6.3** |
| SELENIUM (MCG) | 55 | 62.43 | 62.37 | 0.881 | 1.0 | 0.1 |
| PHOSPHORUS (MG) | 700 | 1,577.59 | 1,487.58 | 0.172 | 1.1 | 6.1 |
| **MAGNESIUM (MG)** | **420** | **354.51** | **298.99** | **0.000** | **1.2** | **18.6** |
| **FOLATE (MCG DIETARY FOLATE EQ)** | **400** | **686.71** | **644.97** | **0.036** | **1.1** | **6.5** |
| **THIAMIN (B1) (MG)** | **1.2** | **1.46** | **1.30** | **0.004** | **1.1** | **12.1** |
| **RIBOFLAVIN (B2) (MG)** | **1.3** | **0.74** | **0.48** | **0.000** | **1.5** | **54.9** |
| **NIACIN (MG)** | **16** | **20.58** | **18.80** | **0.010** | **1.1** | **9.5** |
| **VITAMIN B6 (MG)** | **1.3** | **1.48** | **1.23** | **0.000** | **1.2** | **20.2** |
| VITAMIN B12 (MCG) | 2.4 | 0.95 | 1.55 | 0.068 | 0.6 | -38.3 |

Note: The adult male selected as the base for the adult equivalent unit based on calories is between 30 and 59 years old.
Mann-Whitney U non-parametric tests indicate that the distributions of nutrient intakes are significantly different between intervention and control areas when p-values<0.05, as highlighted by bold type.

## TABLE 5.3

PERCENT OF HOUSEHOLDS USING INGREDIENT DURING PREVIOUS 24 HOURS IN FINAL ROUND CONSUMPTION SURVEY BY AREA

| | AREA OF STUDY | |
|---|---|---|
| | INTERVENTION | CONTROL |
| MAIZE FLOUR | 22.5 | 27.6 |
| RICE FLOUR | 0.4 | 1.2 |
| SORGHUM FLOUR | 0.4 | 0.0 |
| DRY RICE | 47.8 | 50.6 |
| MAIZE ON THE COB | 9.0 | 0.4 |
| MAIZE BRAN | 0.0 | 0.4 |
| BREAD | 0.2 | 4.1 |
| PASTA | 0.2 | 0.0 |
| DRY CASSAVA | 0.8 | 1.6 |
| CASSAVA FLOUR | 85.9 | 70.8 |
| FRESH CASSAVA | 17.5 | 2.1 |
| WHITE-FLESH SWEET POTATO | 16.9 | 27.6 |
| YELLOW-FLESH SWEET POTATO | 1.2 | 2.5 |
| ORANGE-FLESH SWEET POTATO | 34.5 | 2.9 |
| IRISH POTATO | 0.0 | 0.4 |
| TARO (INHAME) | 0.4 | 0.0 |
| OTHER TUBERS | 7.0 | 2.1 |
| DRY COWPEA | 4.8 | 7.8 |
| DRY SUGAR BEAN | 3.0 | 6.2 |
| DRY PIGEON PEA | 5.8 | 4.5 |
| FRESH COWPEA | 3.4 | 0.4 |
| FRESH SUGAR BEAN | 0.2 | 0.0 |
| FRESH PIGEON PEA | 14.3 | 2.1 |
| DRY PEAS | 0.6 | 0.0 |
| DRY PEANUT | 4.8 | 0.4 |
| SESAME | 0.6 | 0.0 |
| CASHEW NUT | 0.2 | 0.0 |
| PUMPKIN SEED | 0.2 | 0.0 |
| MELON SEED | 0.2 | 0.0 |
| OTHER NUTS OR SEEDS | 1.0 | 0.0 |
| DRY FISH | 41.6 | 51.4 |
| FRESH FISH | 28.7 | 37.9 |
| FRESH PRAWN | 9.2 | 14.0 |
| DRY PRAWN | 9.6 | 6.2 |
| CRAB | 0.8 | 0.0 |
| OTHER SEAFOOD | 2.2 | 0.8 |

| | AREA OF STUDY | |
|---|---|---|
| | INTERVENTION | CONTROL |
| CHICKEN | 3.6 | 4.5 |
| DUCK | 0.2 | 0.4 |
| OTHER FOWL | 1.0 | 1.2 |
| PORK | 1.2 | 0.0 |
| GOAT MEAT | 0.4 | 0.4 |
| GAME MEAT | 4.0 | 1.2 |
| RAT | 7.0 | 1.6 |
| CANE RAT | 3.4 | 0.8 |
| MONKEY | 1.4 | 0.0 |
| RABBIT | 0.2 | 0.4 |
| OTHER BUSH ANIMALS | 0.8 | 0.4 |
| EGGS | 2.6 | 0.4 |
| KALE | 0.8 | 0.8 |
| LETTUCE | 0.2 | 0.0 |
| CABBAGE | 0.0 | 0.8 |
| PUMPKIN LEAVES | 10.2 | 4.9 |
| CASSAVA LEAVES | 9.0 | 7.0 |
| BEAN LEAVES | 1.0 | 2.5 |
| SWEET POTATO LEAVES | 2.0 | 3.3 |
| AMARANTHUS LEAVES | 0.4 | 0.4 |
| PUMPKIN | 4.0 | 1.6 |
| CHILLIES | 4.4 | 2.9 |
| TOMATO | 87.3 | 88.1 |
| ONION | 26.5 | 28.0 |
| EGG PLANT | 0.0 | 0.4 |
| OTHER VEGETABLE | 0.6 | 0.8 |
| BANANA | 9.2 | 5.3 |
| PAPAYA | 50.2 | 23.9 |
| MANGO | 0.4 | 0.0 |
| LEMON | 0.4 | 0.0 |
| GUAVA | 0.2 | 0.0 |
| COCONUT/COCONUT MILK | 58.2 | 60.9 |
| YOUNG COCONUT (WATER) | 2.4 | 2.5 |
| SUGAR | 2.0 | 4.5 |
| SUGAR CANE | 16.1 | 4.5 |
| BISCUIT | 1.4 | 2.1 |
| OIL | 17.1 | 13.6 |
| BEER - BOTTLE/CAN | 0.2 | 0.0 |
| SUGAR CANE ALCOHOL DRINK | 0.6 | 1.2 |
| TEA | 0.4 | 0.8 |
| SALT | 99.6 | 99.2 |

SAMPLE SIZE: 741 STUDY HOUSEHOLDS: 498 IN INTERVENTION AREAS; 243 IN CONTROL AREAS.
DATA COLLECTED IN POST-HARVEST SEASON (AUG-OCT 2005).

## TABLE 5.4

**PERCENT CONTRIBUTION OF EACH INGREDIENT TO TOTAL HOUSEHOLD ENERGY INTAKE (KCAL) WHEN INGREDIENT IS CONSUMED BY AREA**

| | AREA OF STUDY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | INTERVENTION | | | | | CONTROL | | | | |
| | Count | Mean | Median | Minimum | Maximum | Count | Mean | Median | Minimum | Maximum |
| MAIZE FLOUR | 112 | 30.3 | 30.1 | 1.7 | 72.8 | 67 | 31.1 | 29.8 | 4.9 | 85.6 |
| DRY RICE | 238 | 33.3 | 28.9 | 3.3 | 94.6 | 123 | 44.5 | 39.9 | 3.8 | 91.1 |
| MAIZE ON THE COB | 45 | 9.1 | 8.2 | 1.0 | 24.8 | 1 | 15.2 | 15.2 | 15.2 | 15.2 |
| CASSAVA FLOUR | 428 | 46.8 | 43.5 | 2.7 | 97.2 | 172 | 59.1 | 63.3 | 2.9 | 96.8 |
| FRESH CASSAVA | 87 | 15.2 | 13.1 | .6 | 47.1 | 5 | 12.1 | 13.6 | 6.5 | 16.1 |
| WHITE-FLESH SWEET POTATO | 84 | 14.0 | 13.3 | .8 | 54.6 | 67 | 13.4 | 13.6 | 1.1 | 54.8 |
| YELLOW-FLESH SWEET POTATO | 6 | 6.8 | 4.0 | 2.5 | 16.8 | 6 | 10.6 | 8.5 | 1.2 | 20.5 |
| ORANGE-FLESH SWEET POTATO | 172 | 13.4 | 11.9 | .8 | 47.3 | 7 | 11.8 | 10.8 | 3.0 | 19.0 |
| OTHER TUBERS | 35 | 8.6 | 7.3 | 1.5 | 25.3 | 5 | 5.6 | 5.1 | 4.0 | 8.4 |
| DRY COWPEA | 24 | 6.8 | 6.2 | 1.2 | 19.9 | 19 | 11.3 | 8.0 | 2.4 | 28.9 |
| DRY SUGAR BEAN | 15 | 9.1 | 8.9 | 5.1 | 15.0 | 15 | 7.6 | 7.2 | 1.4 | 14.3 |
| DRY PIGEON PEA | 29 | 15.0 | 13.0 | 3.8 | 35.2 | 11 | 15.1 | 12.5 | 7.8 | 43.4 |
| FRESH COWPEA | 17 | 10.4 | 4.8 | 1.6 | 45.2 | 1 | 2.0 | 2.0 | 2.0 | 2.0 |
| FRESH PIGEON PEA | 71 | 10.3 | 5.5 | .3 | 34.7 | 5 | 3.7 | 3.2 | 2.7 | 4.9 |
| DRY PEANUT | 24 | 7.6 | 5.1 | 1.0 | 26.7 | 1 | 2.1 | 2.1 | 2.1 | 2.1 |
| DRY FISH | 207 | 8.3 | 6.6 | .1 | 34.2 | 125 | 7.9 | 7.2 | .9 | 24.5 |
| FRESH FISH | 143 | 3.7 | 3.2 | .2 | 13.9 | 92 | 3.5 | 3.0 | .6 | 9.7 |
| FRESH PRAWN | 46 | .5 | .4 | .1 | 1.2 | 34 | .5 | .4 | .1 | 1.8 |
| DRY PRAWN | 48 | 1.8 | 1.4 | .3 | 6.7 | 15 | 2.1 | 1.8 | 1.0 | 3.1 |
| OTHER SEAFOOD | 11 | .6 | .4 | .2 | 2.4 | 2 | 1.3 | 1.3 | .2 | 2.3 |
| CHICKEN | 18 | 7.4 | 6.1 | 3.9 | 17.6 | 11 | 7.8 | 6.5 | 4.4 | 18.9 |
| RAT | 35 | 4.6 | 3.8 | 1.2 | 16.7 | 4 | 5.4 | 5.0 | 3.8 | 7.8 |
| CANE RAT | 17 | 13.8 | 12.6 | 2.4 | 25.9 | 2 | 10.0 | 10.0 | 5.7 | 14.4 |
| PUMPKIN | 20 | 9.0 | 4.3 | .6 | 27.8 | 4 | 1.9 | 1.4 | .9 | 3.9 |
| PAPAYA | 250 | 12.0 | 11.4 | .6 | 32.9 | 58 | 12.3 | 11.9 | 1.3 | 36.8 |
| COCONUT/COCONUT MILK | 290 | 9.9 | 8.9 | 1.4 | 29.6 | 148 | 12.3 | 10.5 | .1 | 55.9 |
| SUGAR | 10 | 4.5 | 1.2 | .2 | 25.1 | 11 | 1.6 | .9 | .1 | 4.8 |
| SUGAR CANE | 80 | 5.3 | 4.3 | .6 | 19.4 | 11 | 4.0 | 3.1 | .8 | 9.4 |
| BISCUIT | 7 | 2.0 | 1.1 | .4 | 5.6 | 5 | 2.2 | 2.2 | .7 | 3.3 |
| OIL | 85 | 3.5 | 2.9 | .4 | 14.0 | 33 | 3.8 | 3.3 | .3 | 14.9 |

SAMPLE SIZE: 741 TOTAL HOUSEHOLDS: 498 IN INTERVENTION AREAS; 243 IN CONTROL AREAS. DATA COLLECTED IN POST-HARVEST SE (AUG-OCT) 2005.

## TABLE 5.5

**PERCENTAGE CONTRIBUTION OF EACH INGREDIENT TO VITAMIN A CONTENT OF HOUSEHOLD DIET WHEN INGREDIENT IS CONSUMED BY AREA**

| | AREA OF STUDY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | INTERVENTION | | | | | CONTROL | | | | |
| | Count | Mean | Median | Minimum | Maximum | Count | Mean | Median | Minimum | Maximum |
| YELLOW-FLESH SWEET POTATO | 6 | 39.1 | 31.5 | 3.4 | 94.9 | 6 | 79.4 | 80.1 | 67.3 | 90.9 |
| ORANGE-FLESH SWEET POTATO | 172 | 89.1 | 93.2 | 32.5 | 100.0 | 7 | 94.5 | 96.4 | 87.4 | 98.2 |
| FRESH COWPEA | 17 | 23.1 | 7.8 | .6 | 87.4 | 1 | 14.9 | 14.9 | 14.9 | 14.9 |
| FRESH FISH | 143 | 19.2 | 7.9 | .1 | 100.0 | 92 | 36.5 | 35.0 | .3 | 100.0 |
| FRESH PRAWN | 46 | 1.9 | 1.1 | .0 | 12.7 | 34 | 3.9 | 2.0 | .1 | 33.7 |
| CRAB | 4 | 3.8 | 3.8 | .1 | 7.7 | | . | . | . | . |
| OTHER SEAFOOD | 11 | 17.6 | 17.6 | .9 | 64.3 | 2 | 8.7 | 8.7 | 1.5 | 15.9 |
| CHICKEN | 18 | 14.9 | 4.3 | .4 | 61.6 | 11 | 26.1 | 21.0 | 5.7 | 64.4 |
| RAT | 35 | 10.2 | 1.5 | .1 | 100.0 | 4 | 22.9 | 27.1 | 4.3 | 33.2 |
| EGGS | 13 | 10.4 | 4.3 | .3 | 65.9 | 1 | 3.2 | 3.2 | 3.2 | 3.2 |
| KALE | 4 | 18.7 | 18.9 | 7.5 | 29.6 | 2 | 54.2 | 54.2 | 18.9 | 89.4 |
| PUMPKIN LEAVES | 51 | 10.9 | 4.2 | .2 | 99.4 | 12 | 28.4 | 22.1 | .9 | 78.0 |
| CASSAVA LEAVES | 45 | 24.5 | 7.7 | .5 | 100.0 | 17 | 42.7 | 43.0 | 1.3 | 91.9 |
| BEAN LEAVES | 5 | 2.8 | .3 | .1 | 11.7 | 6 | 31.3 | 20.9 | 7.6 | 100.0 |
| SWEET POTATO LEAVES | 10 | 29.8 | 35.0 | .3 | 50.6 | 8 | 29.3 | 19.2 | 2.1 | 61.4 |
| PUMPKIN | 20 | 59.6 | 58.2 | 9.6 | 99.0 | 4 | 70.4 | 83.5 | 21.2 | 93.5 |
| TOMATO | 435 | 22.3 | 5.6 | .0 | 100.0 | 214 | 48.9 | 46.8 | .4 | 100.0 |
| PAPAYA | 250 | 57.1 | 75.2 | .0 | 99.8 | 58 | 80.4 | 88.9 | .0 | 99.7 |
| MANGO | 2 | 80.8 | 80.8 | 61.5 | 100.0 | | . | . | . | . |

SAMPLE SIZE: 741 HOUSEHOLDS: 498 IN INTERVENTION AREAS; 243 IN CONTROL AREAS. DATA COLLECTED IN POST-HARVEST SEASON (AUG-OCT) 2005.

## TABLE 5.6

**TOTAL MEAN AND MEDIAN NUMBER OF DIFFERENT FOODS CONSUMED BY THE HOUSEHOLD BY AREA DURING FINAL ROUND**

| | | Mean | Median | Minimum | Maximum | Mode | Percentile 25 | Percentile 75 |
|---|---|---|---|---|---|---|---|---|
| ALL STUDY HOUSEHOLDS | | 7 | 7 | 2 | 13 | 6 | 5 | 8 |
| AREA OF STUDY | INTERVENTION | 7 | 7 | 2 | 13 | 7 | 6 | 8 |
| | CONTROL | 6 | 6 | 2 | 12 | 5 | 5 | 7 |

SAMPLE SIZE: 741 HOUSEHOLDS: 498 IN INTERVENTION AREAS; 243 IN CONTROL AREAS. DATA COLLECTED IN POST-HARVEST SEASON (AUG-OCT) 2005. MEANS SIGNIFICANTLY DIFFERENT AT 0.000 LEVEL BASED ON T-TEST.

## TABLE 5.7

**REFERENCE CHILD CONSUMPTION OF KEY MACRO- AND MICRO-NUTRIENTS AND PHYTATE IN FINAL ROUND: MEAN, MEDIANS AND PERCENTILES BY AREA**

| | AREA OF STUDY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | INTERVENTION | | | | | CONTROL | | | | |
| | Mean | Std Deviation | Median | Percentile 25 | Percentile 75 | Mean | Std Deviation | Median | Percentile 25 | Percentile 75 |
| ENERGY (KCAL) | 1455 | 566.18 | 1399.3 | 1020.18 | 1846.79 | 1268.48 | 459.08 | 1224.91 | 911.06 | 1591.65 |
| PROTEIN (GMS) | 38.71 | 25.28 | 33.56 | 20.87 | 48.99 | 34.52 | 20.73 | 29.67 | 20.00 | 48.09 |
| LIPIDS (GMS) | 21.58 | 18.86 | 17.30 | 7.57 | 29.06 | 19.26 | 17.54 | 14.88 | 5.38 | 26.87 |
| VITAMIN A (MCG RAE) | 1074 | 1412.93 | 468.03 | 65.00 | 1900.98 | 180.50 | 399.52 | 56.09 | 23.40 | 140.31 |
| RETINOL (MCG) | 11.65 | 19.80 | .79 | .00 | 17.49 | 10.23 | 16.56 | .43 | .00 | 16.97 |
| BETA-CAROTENE (MCG) | 10909 | 16572.3 | 2224.1 | 143.58 | 22264.0 | 1247.85 | 4472.42 | 77.19 | .05 | 664.13 |
| VITAMIN C (MG) | 260.22 | 281.94 | 117.00 | 51.93 | 426.49 | 122.51 | 192.03 | 44.39 | 23.92 | 110.85 |
| VITAMIN E (MCG) | 4.28 | 3.78 | 3.19 | 1.13 | 6.46 | 2.11 | 2.56 | 1.02 | .19 | 3.24 |
| VITAMIN K (MCG) | 20.75 | 22.46 | 12.97 | 4.98 | 29.80 | 9.17 | 13.83 | 3.84 | .24 | 11.09 |
| IRON (MG) | 10.30 | 5.15 | 9.72 | 6.07 | 13.44 | 9.36 | 4.90 | 8.41 | 5.69 | 12.21 |
| ZINC (MG) | 5.26 | 2.88 | 4.67 | 3.14 | 6.70 | 4.77 | 2.41 | 4.13 | 2.95 | 6.35 |
| PHYTATE (MG) | 1004 | 760.42 | 824.82 | 421.60 | 1323.58 | 965.68 | 725.40 | 765.10 | 454.57 | 1332.29 |
| CALCIUM (MG) | 596.96 | 621.10 | 373.79 | 212.58 | 716.68 | 531.26 | 507.37 | 354.28 | 171.58 | 735.72 |
| SELENIUM (MCG) | 38.26 | 31.60 | 33.04 | 11.67 | 54.45 | 38.30 | 32.19 | 34.63 | 9.74 | 54.68 |
| PHOSPHORUS (MG) | 865.12 | 559.55 | 703.37 | 498.12 | 1077.45 | 805.91 | 460.05 | 678.85 | 494.72 | 1061.33 |
| MAGNESIUM (MG) | 213.78 | 125.93 | 197.10 | 118.55 | 283.31 | 174.46 | 107.25 | 154.60 | 91.83 | 225.68 |
| FOLATE (MCG DIETARY FOLATE EQ) | 421.49 | 312.68 | 388.42 | 134.03 | 638.62 | 363.59 | 330.18 | 320.83 | 60.59 | 514.98 |
| THIAMIN (B1) (MG) | .86 | .52 | .81 | .43 | 1.21 | .74 | .54 | .65 | .28 | 1.02 |
| RIBOFLAVIN (B2) (MG) | .46 | .27 | .40 | .25 | .61 | .31 | .20 | .27 | .17 | .41 |
| NIACIN (MG) | 11.75 | 6.33 | 10.38 | 6.93 | 15.49 | 10.35 | 5.71 | 9.20 | 6.07 | 13.61 |
| VITAMIN B6 (MG) | .92 | .54 | .84 | .53 | 1.22 | .71 | .40 | .67 | .39 | .92 |
| VITAMIN B12 (MCG) | 2.65 | 4.38 | .48 | .06 | 3.89 | 2.64 | 3.67 | .73 | .09 | 4.18 |

SAMPLE SIZE: 741 REFERENCE CHILDREN: 498 IN INTERVENTION AREAS, 243 IN CONTROL AREAS. DATA COLLECTED IN POST-HARVEST SEASON (AUG-OCT) 2005.

## TABLE 5.8

COMPARISON OF MEDIAN NUTRIENT INTAKE VALUES FOR KEY MACRO- AND MICRONUTRIENTS AND MEDIAN INTAKE VALUES BY AREA AND REFERENCE INFORMATION ON RECOMMENDED DAILY ALLOWANCES (RDAs) AND NUTRIENT CONTENT OF ORANGE-FLESHED SWEETPOTATO (OFSP)

| | RDAs FOR 1-3 YR OLD | NUTRIENT CONTENT OF 100 GMS OFSP | AREA | | TEST FOR SIGNIFICANT DIFFERENCE IN DISTRIBUTION (P-VALUES) | INTERVENTION/ CONTROL VALUE | PERCENT DIFFERENCE BETWEEN INTERVENTION & CONTROL AREAS |
|---|---|---|---|---|---|---|---|
| | | | INTERVENTION | CONTROL | | | |
| | | | MEDIAN | MEDIAN | | | |
| **ENERGY (KCAL)** | 1107-1397 | 76.0 | **1,399.31** | **1,224.91** | **0.000** | **1.1** | **14.2** |
| PROTEIN (GMS) | 13 | 1.6 | 33.56 | 29.67 | 0.063 | 1.1 | 13.1 |
| LIPIDS (GMS) | | 0.05 | 17.30 | 14.88 | 0.119 | 1.2 | 16.2 |
| **VITAMIN A (MCG RAE)** | 300 | 727 | **468.03** | **56.09** | **0.000** | **8.3** | **734.5** |
| RETINOL (MCG) | | 0 | 0.79 | 0.43 | 0.637 | 1.8 | 83.5 |
| **BETA-CAROTENE (MCG)** | | 8727 | **2,224.06** | **77.189** | **0.000** | **28.8** | **2781.3** |
| **VITAMIN C (MG)** | 15 | 22.7 | **117.00** | **44.39** | **0.000** | **2.6** | **163.6** |
| **VITAMIN E (MCG)** | 6 | 0.26 | **3.19** | **1.02** | **0.000** | **3.1** | **213.4** |
| **VITAMIN K (MCG)** | 30 | 1.8 | **12.97** | **3.84** | **0.000** | **3.4** | **238.1** |
| **IRON (MG)** | 7 | 0.61 | **9.72** | **8.41** | **0.020** | **1.2** | **15.7** |
| ZINC (MG) | 3 | 0.30 | 4.67 | 4.13 | 0.065 | 1.1 | 13.2 |
| PHYTATE (MG) | | | 824.82 | 765.10 | 0.686 | 1.1 | 7.8 |
| CALCIUM (MG) | 500 | 30.0 | 373.79 | 354.28 | 0.120 | 1.1 | 5.5 |
| SELENIUM (MCG) | 20 | 0.60 | 33.04 | 34.63 | 0.789 | 1.0 | -4.6 |
| PHOSPHORUS (MG) | 460 | 47.0 | 703.37 | 678.85 | 0.439 | 1.0 | 3.6 |
| **MAGNESIUM (MG)** | 80 | 25.0 | **197.10** | **154.60** | **0.000** | **1.3** | **27.5** |
| **FOLATE (MCG DIETARY FOLATE EQ)** | 150 | 14.0 | **388.42** | **320.83** | **0.001** | **1.2** | **21.1** |
| **THIAMIN (B1) (MG)** | 0.5 | 0.08 | **0.81** | **0.65** | **0.001** | **1.2** | **24.3** |
| **RIBOFLAVIN (B2) (MG)** | 0.5 | 0.06 | **0.40** | **0.27** | **0.000** | **1.5** | **48.0** |
| **NIACIN (MG)** | 6 | 0.56 | **10.38** | **9.20** | **0.004** | **1.1** | **12.9** |
| **VITAMIN B6 (MG)** | 0.5 | 0.21 | **0.84** | **0.67** | **0.000** | **1.3** | **25.3** |
| VITAMIN B12 (MCG) | 0.9 | 0 | 0.48 | 0.73 | 0.172 | 0.7 | -34.6 |

Note: Mann-Whitney U non-parametric tests indicate that the distributions of nutrient intakes are significantly different between intervention and control areas when p-values<0.05, as highlighted by bold type. Vitamin A content of beta-carotene rich sweetpotato based on orange-fleshed root of medium intensity.

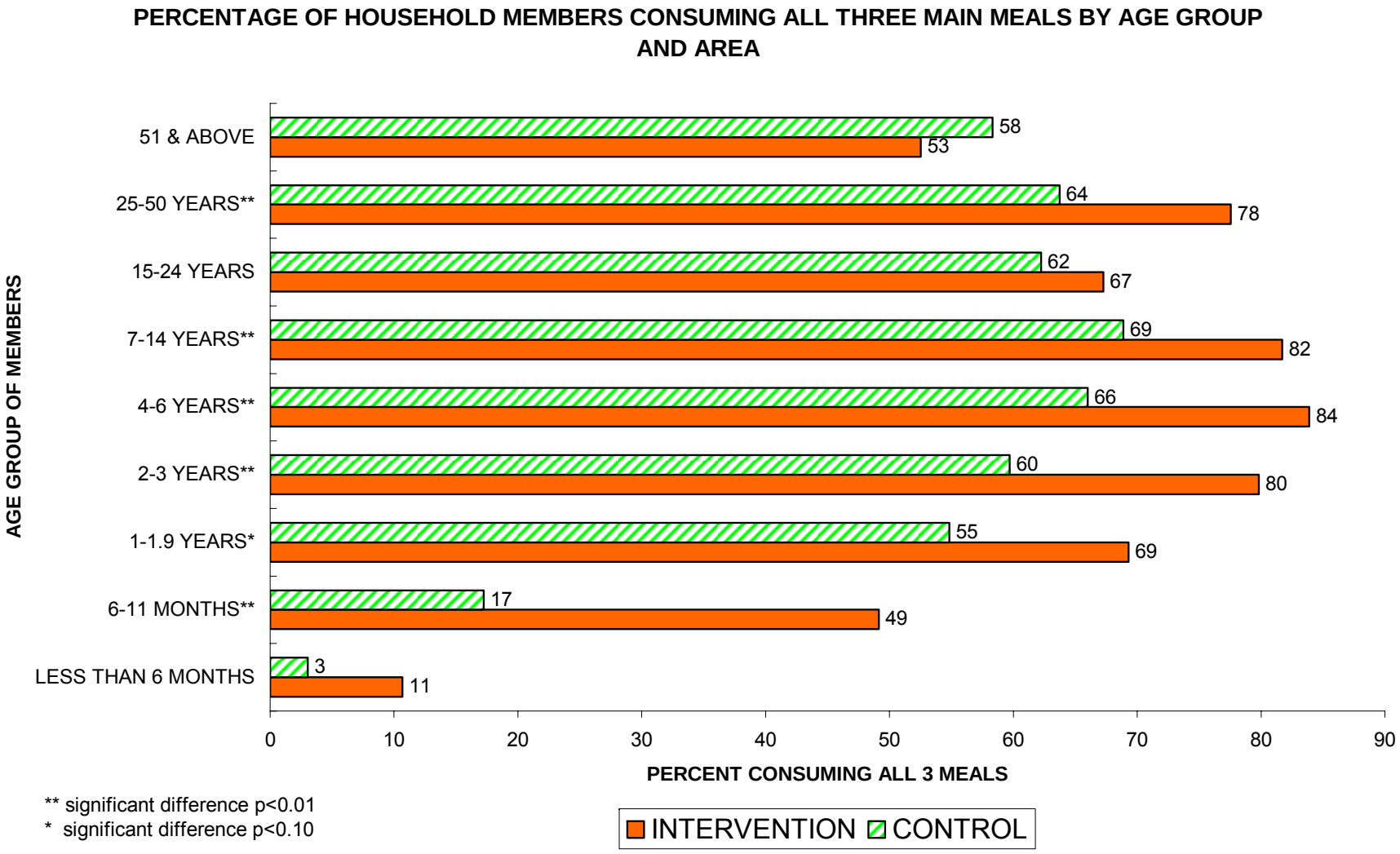
## TABLE 5.9

**PARTICIPATION IN THREE MAIN MEALS OF DAY IN THE FINAL ROUND BY AREA**

| | | ALL STUDY HOUSEHOLDS | | AREA OF STUDY | | | |
|---|---|---|---|---|---|---|---|
| | | | | INTERVENTION | | CONTROL | |
| | | Count | Col % | Count | Col % | Count | Col % |
| ATE BREAKFAST OR LATER IN THE MORNING? | YES | 3326 | 75.7% | 2358 | 79.5% | 968 | 67.7% |
| ATE LUNCH OR LATER IN THE AFTERNOON? | YES | 3934 | 89.5% | 2648 | 89.3% | 1286 | 90.0% |
| ATE DINNER OR LATER IN THE EVENING? | YES | 3770 | 85.8% | 2557 | 86.2% | 1213 | 84.9% |
| MEMBER ATE AT ALL THREE MAJOR TIMES OF DAY | YES | 3109 | 70.6% | 2228 | 74.9% | 881 | 61.6% |

SAMPLE SIZE: 4888 MEMBERS OF 741 TOTAL HOUSEHOLDS: 498 HOUSEHOLDS IN INTERVENTION AREAS; 243 HOUSEHOLDS IN CONTROL AREAS.PARTICIPATION IN ALL MEALS SIGNIFICANTLY HIGHER IN INTERVENTION THAN CONTROL AREAS AT 0.1 LEVEL DUE TO HIGHER PARTICIPATION IN MORNING MEALS.

**FIGURE 5.1**


PERCENTAGE OF HOUSEHOLD MEMBERS CONSUMING ALL THREE MAIN MEALS BY AGE GROUP AND AREA
AGE GROUP OF MEMBERS
51 & ABOVE
25-50 YEARS**
15-24 YEARS
7-14 YEARS**
4-6 YEARS**
2-3 YEARS**
1-1.9 YEARS*
6-11 MONTHS**
LESS THAN 6 MONTHS
58
53
64
78
62
67
69
82
66
84
60
80
55
69
17
49
3
11
0
10
20
30
40
50
60
70
80
90
PERCENT CONSUMING ALL 3 MEALS
** significant difference p<0.01
* significant difference p<0.10
INTERVENTION
CONTROL

## TABLE 5.10

**ASSESSMENT OF DIVERSITY OF FOOD GROUP CONSUMPTION USING 10 GRAM CUT-OFF POINT AMONG REFERENCE CHILDREN IN FINAL ROUND BY AREA**

| | | ALL HOUSEHOLDS | | STUDY AREA | | | |
|---|---|---|---|---|---|---|---|
| | | | | INTERVENTION | | CONTROL | |
| | | Count | Col % | Count | Col % | Count | Col % |
| 10 GMS OR MORE OF FLESH FOODS CONSUMED | YES | 550 | 74.2% | 365 | 73.3% | 185 | 76.1% |
| 10 GMS OR MORE OF EGGS CONSUMED | YES | 11 | 1.5% | 10 | 2.0% | 1 | .4% |
| 10 GMS OR MORE OF DAIRY PRODUCTS CONSUMED | NO | 741 | 100.0% | 498 | 100.0% | 243 | 100.0% |
| 10 GMS OR MORE OF GRAIN PRODUCTS & NON-VITAMIN A-RICH ROOTS & TUBERS | YES | 740 | 99.9% | 497 | 99.8% | 243 | 100.0% |
| 10 GMS OR MORE OF VITAMIN A-RICH ROOTS & TUBERS CONSUMED | YES | 188 | 25.4% | 175 | 35.1% | 13 | 5.3% |
| 10 GMS OR MORE OF LEGUMES & NUTS CONSUMED | YES | 211 | 28.5% | 163 | 32.7% | 48 | 19.8% |
| 10 GMS OR MORE OF VITAMIN A-RICH FRUITS & VEGETABLES & JUICES | YES | 355 | 47.9% | 279 | 56.0% | 76 | 31.3% |
| 10 GMS OR MORE OF OTHER FRUITS & VEGETABLES CONSUMED | YES | 658 | 88.8% | 444 | 89.2% | 214 | 88.1% |
| 5 GMS OR MORE OF OILS & FATS CONSUMED | YES | 445 | 60.1% | 297 | 59.6% | 148 | 60.9% |
| SUM OF FOOD GROUPS WHERE 10 GMS OF EACH GROUP WAS CONSUMED BY CHILD | 1 | 5 | .7% | 2 | .4% | 3 | 1.2% |
| | 2 | 52 | 7.0% | 28 | 5.6% | 24 | 9.9% |
| | 3 | 240 | 32.4% | 118 | 23.7% | 122 | 50.2% |
| | 4 | 264 | 35.6% | 193 | 38.8% | 71 | 29.2% |
| | 5 | 139 | 18.8% | 119 | 23.9% | 20 | 8.2% |
| | 6 | 37 | 5.0% | 34 | 6.8% | 3 | 1.2% |
| | 7 | 4 | .5% | 4 | .8% | | |

SAMPLE SIZE: 741 REFERENCE CHILDREN: 498 INTERVENTION, 243 CONTROL. DATA COLLECTED IN POST-HARVEST SEASON (AUG-OCT 2004). NOTE: CUT-OFF POINT WAS 5 GMS FOR OILS AND FATS.

**TABLE 5.11**

## FOOD FREQUENCY RESULTS FOR REFERENCE CHILD CONSUMPTION OF ORANGE-FLESHED SWEETPOTATO DURING THE PREVIOUS WEEK BY ROUND AND INTERVENTION AREA

| | STUDY AREA | | | | | | COMPARE MEDIANS: p-value[a] | COMPARE PERCENTS: p-value[b] |
|---|---|---|---|---|---|---|---|---|
| | INTERVENTION (n = 498) | | | CONTROL (n = 243) | | | | |
| | Mean number of days | Median number of days | Percent having 3+ days | Mean number of days | Median number of days | Percent having 3+ days | | |
| **BASELINE (rains/planting/group plots)** | 0.10 | 0 | 1.2 | 0.02 | 0 | 0.4 | 0.002 | 0.437[d] |
| **ROUND 1 (late rains/early OFSP harvest)** | 0.09 | 0 | 1.4 | 0.01 | 0 | 0.0 | 0.014 | 0.103[d] |
| **ROUND 2 (early rains/secondary OFSP harvest)** | 1.09 | 0 | 16.8 | 0.20 | 0 | 2.1 | 0.000 | 0.000 |
| **MID-TERM SURVEY (rains/planting)[c]** | 0.51 | 0 | 7.5 | --- | --- | --- | --- | --- |
| **ROUND 3 (late rains/early OFSP harvest)[c]** | 0.98 | 0 | 15.2 | --- | --- | --- | --- | --- |
| **HH CONSUMPTION: ROUND 2 (main OFSP harvest)** | 3.03 | 3 | 54.4 | 0.35 | 0 | 3.7 | 0.000 | 0.000 |
| **ROUND 4 (early rains/secondary OFSP harvest)** | 3.08 | 3 | 55.2 | 0.53 | 0 | 8.2 | 0.000 | 0.000 |

a Mann Whitney U test
b chi-square
c no measure in control community.
d Fisher's exact (small expected values in 2 cells)

## TABLE 5.12

**PERCENT CONTRIBUTION OF SOURCES OF VITAMIN A TO TOTAL VITAMIN A INTAKE WHEN THE INGREDIENT IS CONSUMED BY THE CHILD BY AREA**

| | AREA OF | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | INTERVENTIO | | | | | | CONTRO | | | | | |
| | Coun | Mea | St Deviatio | Media | Minimu | Maximu | Coun | Mea | St Deviatio | Media | Minimu | Maximu |
| Yellow fleshed sweetpotato | 6 | 48. | 42. | 42. | 9. | 96. | 6 | 82. | 15. | 85. | 60. | 98. |
| Orange fleshed sweetpotato | 17 | 90. | 11. | 96. | 38. | 100. | 7 | 93. | 6. | 93. | 79. | 99. |
| Fresh cowpea | 1 | 16. | 27. | 4. | . | 79. | 1 | 13. | . | 13. | 13. | 13. |
| Fresh fish | 14 | 18. | 23. | 7. | . | 100. | 8 | 36. | 28. | 31. | . | 100. |
| Chicken | 1 | 15. | 19. | 4. | . | 65. | 9 | 26. | 19. | 26. | 5. | 71. |
| Rat | 3 | 12. | 22. | 1. | . | 100. | 4 | 18. | 16. | 15. | 2. | 39. |
| Eggs | 1 | 12. | 19. | 4. | . | 67. | 1 | 5. | . | 5. | 5. | 5. |
| Pumpkin leaves | 4 | 12. | 18. | 4. | . | 99. | 1 | 25. | 21. | 20. | 1. | 68. |
| Cassava leaves | 4 | 27. | 31. | 12. | . | 100. | 1 | 43. | 24. | 40. | 3. | 91. |
| Sweetpotato leaves | 9 | 31. | 18. | 36. | . | 52. | 8 | 29. | 25. | 20. | 2. | 75. |
| Pumpkin | 2 | 58. | 33. | 57. | 10. | 99. | 4 | 71. | 33. | 86. | 22. | 92. |
| Tomato | 43 | 22. | 30. | 5. | . | 100. | 20 | 49. | 36. | 47. | . | 100. |
| Papaya | 24 | 56. | 35. | 72. | . | 99. | 5 | 82. | 17. | 87. | 19. | 99. |
| Mango | 2 | 76. | 33. | 76. | 53. | 100. | | . | . | . | . | . |

SAMPLE SIZE: 741 REFERENCE CHILDREN: 498 IN INTERVENTION AREAS; 243 IN CONTROL AREAS. DATA COLLECTED IN POST-HARVEST SEASON (AUG-

## TABLE 5.13

**CONTRIBUTION OF BETA-CAROTENE-RICH SWEETPOTATO TO THE DIET OF THE YOUNG CHILD: PERCENT OF TOTAL NUTRIENT INTAKE**

| | AREA OF STUDY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | INTERVENTION | | | | | CONTROL | | | | |
| | Count | Mean | Std Deviation | Minimum | Maximum | Count | Mean | Std Deviation | Minimum | Maximum |
| % OF TOTAL ENERGY (KCAL) OF CHILD | 498 | 6.03 | 10.50 | .00 | 90.31 | 243 | .51 | 3.18 | .00 | 28.31 |
| % OF TOTAL VITAMIN A (MG RAE) OF CHILD | 498 | 31.10 | 43.38 | .00 | 100.00 | 243 | 2.69 | 15.66 | .00 | 99.27 |
| % OF TOTAL VITAMIN E (MCG) OF CHILD | 498 | 21.09 | 33.98 | .00 | 100.00 | 243 | 2.25 | 13.73 | .00 | 100.00 |
| % OF TOTAL VITAMIN B6 (MG) OF CHILD | 498 | 16.79 | 25.67 | .00 | 99.30 | 243 | 1.78 | 11.02 | .00 | 86.16 |
| % OF TOTAL VITAMIN K (MCG) OF CHILD | 498 | 17.24 | 31.65 | .00 | 100.00 | 243 | 2.33 | 14.39 | .00 | 100.00 |
| % OF TOTAL VITAMIN C (MG) OF CHILD | 498 | 11.46 | 22.69 | .00 | 99.23 | 243 | 1.04 | 7.54 | .00 | 76.52 |
| % OF TOTAL RIBOFLAVIN (B2) (MG) OF CHILD | 498 | 11.65 | 19.62 | .00 | 100.00 | 243 | 1.35 | 8.66 | .00 | 74.72 |
| % OF TOTAL THIAMIN (B1) (MG) OF CHILD | 498 | 9.28 | 17.28 | .00 | 98.38 | 243 | 1.17 | 8.21 | .00 | 74.14 |
| % OF TOTAL NIACIN (MG) OF CHILD | 498 | 6.23 | 11.69 | .00 | 95.23 | 243 | .57 | 3.73 | .00 | 39.68 |
| % OF TOTAL PHYTATE (MG) OF CHILD | 498 | 2.14 | 5.70 | .00 | 74.41 | 243 | .16 | 1.10 | .00 | 12.11 |

SAMPLE SIZE: 741 HOUSEHOLDS: 498 INTERVENTION AND 243 CONTROL REFERENCE CHILDREN IN 24 HOUR RECALL SURVEY (AUG-OUT 2004)

**TABLE 5.14**

**SUMMARY OF KEY CHARACTERISTICS OF REFERENCE CHILD NUTRIENT INTAKE IN FINAL ROUND**

| | | INTERVENTION (N=498) | CONTROL (N=243) | P-VALUE |
|---|---|---|---|---|
| MEAN ± SD OFSP INTAKE** (days/week) | | 2.8 ± 2.7 | n.a. | |
| MEAN ± SD OFSP INTAKE* (gm/day) | | 104 ± 174 | 7.1 ± 46 | 0.000 |
| VITAMIN A INTAKE (ug RAE/day)* | --MEAN ± SD | 1074 ± 1413 | 180 ± 400 | 0.000 |
| | --MEDIAN | 468 | 56 | 0.000 |
| % MEAN VITAMIN A FROM OFSP* | | 31% | 3% | 0.000 |
| ENERGY INTAKE: MEAN ± SD kcal/day* | | 1455 ± 566 | 1268 ± 459 | 0.000 |
| FAT INTAKE: MEAN ± SD gm fat/day* | | 21.6 ± 18.9 | 19.3 ± 17.5 | 0.119 |

Note: SD = Standard deviation OFSP = Beta-carotene-rich Orange-fleshed Sweetpotato

* Intake levels based on 24 hour recall survey from August-October 2004 that does not include estimates of breast milk consumption for the 9.6% of reference children still breast feeding at that time. Mann-Whitney U non-parametric tests show significant differences between study areas when p-value <0.05.

**Recall information on frequency of intake per month from June-November 2004 collected during final survey round (November 2004-January 2006).

**TABLE 5.15**

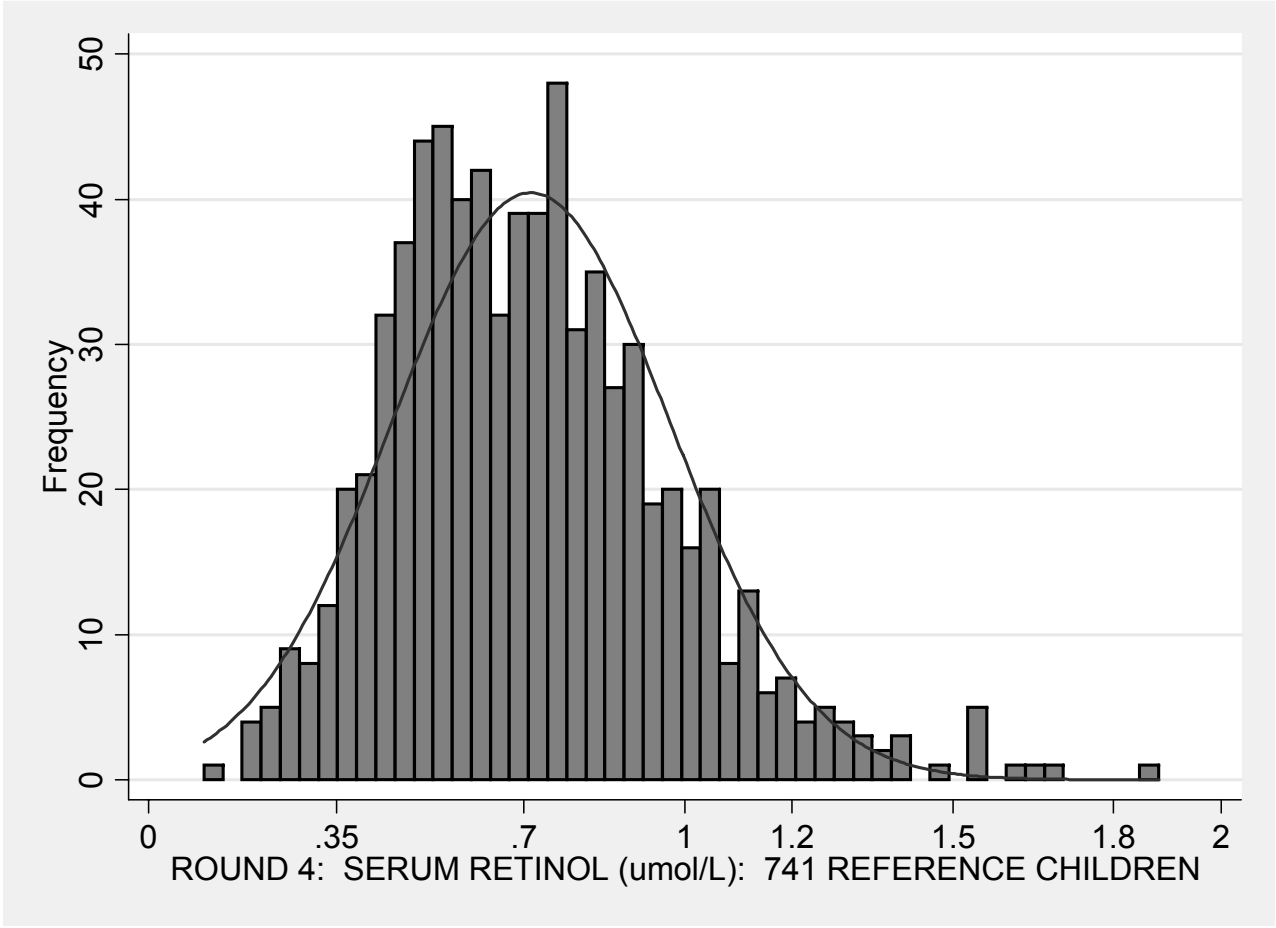
## INTERVENTION REFERENCE CHILD CONSUMPTION OF KEY MACRO- AND MICRO-NUTRIENTS AND PHYTATE IN FINAL ROUND: MEAN, MEDIANS AND PERCENTILES BY TYPE OF INTERVENTION GROUP

| | TYPE OF INTERVENTION GROUP | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | GROUP SESSIONS ONLY | | | | | HOUSEHOLD VISITS & GROUP SESSIONS | | | | | |
| | Mean | Std Deviation | Median | Percentile 25 | Percentile 75 | Mean | Std Deviation | Median | Percentile 25 | Percentile 75 | P-VALUES |
| **ENERGY (KCAL)** | **1,356.4** | **558.0** | **1,258.5** | **907.4** | **1,741.9** | **1,551.4** | **558.5** | **1,501.4** | **1,161.0** | **1,860.3** | **0.000** |
| **PROTEIN (GMS)** | **36.5** | **25.7** | **31.4** | **18.5** | **45.7** | **40.9** | **24.8** | **35.1** | **21.9** | **51.1** | **0.013** |
| **LIPIDS (GMS)** | **17.0** | **14.6** | **13.7** | **4.9** | **25.0** | **26.0** | **21.3** | **20.4** | **9.4** | **37.4** | **0.000** |
| VITAMIN A (MCG RAE) | 1,155.7 | 1,486.4 | 488.2 | 64.4 | 2,106.6 | 994.9 | 1,335.5 | 400.3 | 65.5 | 1,775.7 | 0.494 |
| RETINOL (MCG) | 11.9 | 21.3 | 0.0 | 0.0 | 17.1 | 11.4 | 18.2 | 1.7 | 0.0 | 17.6 | 0.216 |
| BETA-CAROTENE (MCG) | 11,931.9 | 17,387.2 | 2,246.5 | 211.2 | 22,366.4 | 9,910.0 | 15,706.5 | 1,745.8 | 121.8 | 16,262.2 | 0.475 |
| VITAMIN C (MG) | 266.4 | 283.2 | 119.7 | 50.1 | 532.4 | 254.2 | 281.1 | 111.7 | 53.7 | 412.0 | 0.833 |
| VITAMIN E (MCG) | 4.3 | 4.0 | 3.1 | 1.1 | 6.7 | 4.2 | 3.6 | 3.3 | 1.2 | 6.2 | 0.798 |
| VITAMIN K (MCG) | 19.9 | 22.5 | 11.8 | 4.6 | 30.5 | 21.6 | 22.4 | 15.6 | 5.3 | 29.4 | 0.166 |
| **IRON (MG)** | **9.3** | **4.9** | **8.6** | **5.2** | **12.3** | **11.3** | **5.2** | **10.6** | **7.5** | **14.4** | **0.000** |
| **ZINC (MG)** | **4.8** | **2.8** | **4.2** | **2.8** | **6.0** | **5.7** | **2.9** | **5.1** | **3.5** | **7.2** | **0.001** |
| **PHYTATE (MG)** | **872.2** | **663.9** | **692.0** | **351.5** | **1,155.8** | **1,132.6** | **825.3** | **937.4** | **524.2** | **1,501.0** | **0.000** |
| CALCIUM (MG) | 597.9 | 652.5 | 380.6 | 206.5 | 698.0 | 596.1 | 590.1 | 368.4 | 215.3 | 762.5 | 0.849 |
| **SELENIUM (MCG)** | **34.2** | **32.2** | **26.6** | **7.2** | **51.5** | **42.2** | **30.5** | **36.5** | **18.1** | **57.7** | **0.000** |
| **PHOSPHORUS (MG)** | **815.0** | **557.7** | **661.8** | **435.8** | **1,044.1** | **914.0** | **558.2** | **733.2** | **525.9** | **1,122.5** | **0.014** |
| **MAGNESIUM (MG)** | **193.5** | **119.0** | **168.5** | **109.6** | **256.2** | **233.6** | **129.6** | **217.1** | **137.5** | **295.4** | **0.000** |
| **FOLATE (MCG DIETARY FOLATE EQ)** | **388.7** | **296.4** | **361.5** | **98.3** | **596.0** | **453.5** | **325.2** | **417.4** | **153.8** | **671.5** | **0.023** |
| **THIAMIN (B1) (MG)** | **0.8** | **0.5** | **0.7** | **0.3** | **1.1** | **0.9** | **0.5** | **0.9** | **0.5** | **1.3** | **0.000** |
| **RIBOFLAVIN (B2) (MG)** | **0.4** | **0.3** | **0.4** | **0.2** | **0.6** | **0.5** | **0.3** | **0.4** | **0.3** | **0.6** | **0.021** |
| **NIACIN (MG)** | **11.0** | **6.3** | **9.8** | **6.2** | **14.3** | **12.5** | **6.3** | **11.8** | **7.9** | **16.2** | **0.003** |
| **VITAMIN B6 (MG)** | **0.8** | **0.5** | **0.7** | **0.5** | **1.2** | **1.0** | **0.5** | **0.9** | **0.6** | **1.3** | **0.001** |
| VITAMIN B12 (MCG) | 2.5 | 4.5 | 0.5 | 0.0 | 3.6 | 2.7 | 4.3 | 0.5 | 0.1 | 4.4 | 0.646 |

SAMPLE SIZE: 498 INTERVENTION REFERENCE CHILDREN: 246 IN IN GROUP SESSIONS ONLY, 252 ALSO RECEIVING HOME VISITS. DATA COLLECTED IN POST-HARVEST SEASON (AUG-OCT) 2005. MANN WHITNEY U TEST INDICATES SIGNIFICANT DIFFERENCES WHEN P-VALUES (<0.05).

**FIGURE 6.1**

**DISTRIBUTION OF SERUM RETINOL (µmol/L) IN ALL CHILDREN COMPLETING ROUND 4**



## TABLE 6.1

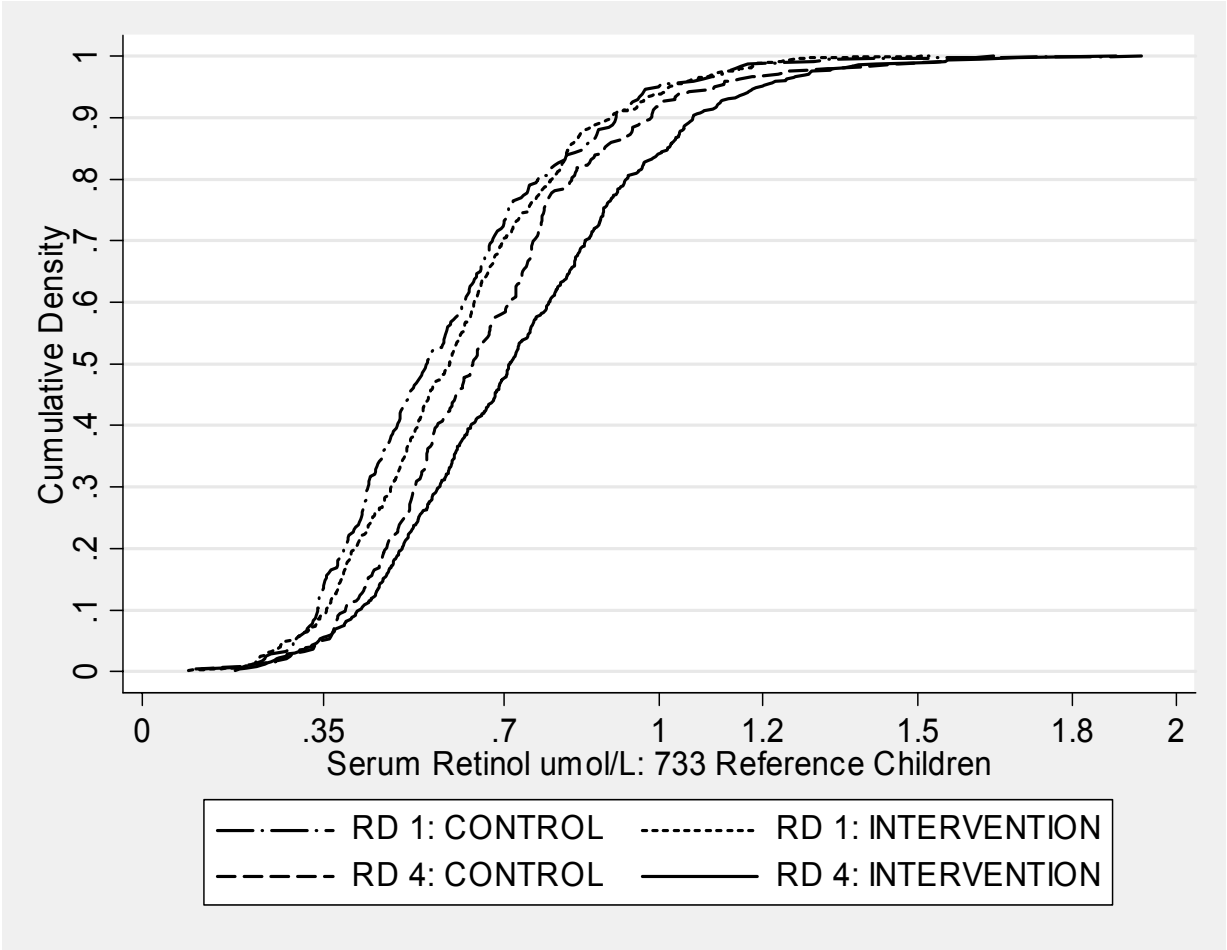
**SAMPLE CHARACTERISTICS AND SERUM RETINOL AND HEMOGLOBIN FOR REFERENCE CHILD AT BASELINE & AT ROUND 4 BY AREA**

| | | | Count | Mean | Std Deviation | Median | Minimum | Maximum | Percentile 25 | Percentile 75 |
|---|---|---|---|---|---|---|---|---|---|---|
| ALL CASES | | AGE OF REFERENCE CHILD IN MONTHS: BASELINE | 733 | 17 | 8 | 16 | 4 | 38 | 11 | 24 |
| | | AGE IN MONTHS OF REFERENCE CHILD (ROUND 4) | 733 | 35 | 8 | 34 | 21 | 55 | 28 | 41 |
| | | PROPORTION OF SAMPLE THAT IS MALE | 733 | .45 | .50 | .00 | .00 | 1.00 | .00 | 1.00 |
| | | BASELINE: PROPORTION OF SAMPLE BREASTFEEDING | 733 | .62 | .49 | 1.00 | .00 | 1.00 | .00 | 1.00 |
| | | ROUND 4: PROPORTION OF SAMPLE BREASTFEEDING | 733 | .06 | .23 | .00 | .00 | 1.00 | .00 | .00 |
| | | ROUND 1: SERUM RETINOL (umol/L) | 733 | .605 | .229 | .583 | .090 | 1.933 | .434 | .732 |
| | | ROUND 4: SERUM RETINOL (umol/L) | 733 | .714 | .261 | .690 | .103 | 1.885 | .523 | .869 |
| | | ROUND 1: HEMOGLOBIN (g/L): REFERENCE CHILD | 733 | 8.3 | 1.7 | 8.2 | 3.7 | 13.3 | 7.0 | 9.5 |
| | | ROUND 4: HEMOGLOBIN (g/L): REFERENCE CHILD | 733 | 9.7 | 1.6 | 9.8 | 4.8 | 17.6 | 8.7 | 10.8 |
| AREA | INTERVENTION | AGE OF REFERENCE CHILD IN MONTHS: BASELINE | 490 | 18 | 8 | 17 | 4 | 38 | 11 | 24 |
| | | AGE IN MONTHS OF REFERENCE CHILD (ROUND 4) | 490 | 35 | 8 | 34 | 21 | 55 | 28 | 42 |
| | | PROPORTION OF SAMPLE THAT IS MALE | 490 | .44 | .50 | .00 | .00 | 1.00 | .00 | 1.00 |
| | | BASELINE: PROPORTION OF SAMPLE BREASTFEEDING | 490 | .61 | .49 | 1.00 | .00 | 1.00 | .00 | 1.00 |
| | | ROUND 4: PROPORTION OF SAMPLE BREASTFEEDING | 490 | .07 | .25 | .00 | .00 | 1.00 | .00 | .00 |
| | | ROUND 1: SERUM RETINOL (umol/L) | 490 | .611 | .223 | .595 | .090 | 1.521 | .446 | .748 |
| | | ROUND 4: SERUM RETINOL (umol/L) | 490 | .735 | .267 | .711 | .180 | 1.885 | .535 | .893 |
| | | ROUND 1: HEMOGLOBIN (g/L): REFERENCE CHILD | 490 | 8.4 | 1.7 | 8.4 | 3.7 | 13.3 | 7.1 | 9.6 |
| | | ROUND 4: HEMOGLOBIN (g/L): REFERENCE CHILD | 490 | 9.8 | 1.6 | 9.8 | 5.5 | 17.6 | 8.8 | 10.8 |
| | CONTROL | AGE OF REFERENCE CHILD IN MONTHS: BASELINE | 243 | 17 | 8 | 16 | 4 | 33 | 11 | 23 |
| | | AGE IN MONTHS OF REFERENCE CHILD (ROUND 4) | 243 | 34 | 7 | 33 | 22 | 50 | 29 | 41 |
| | | PROPORTION OF SAMPLE THAT IS MALE | 243 | .48 | .50 | .00 | .00 | 1.00 | .00 | 1.00 |
| | | BASELINE: PROPORTION OF SAMPLE BREASTFEEDING | 243 | .65 | .48 | 1.00 | .00 | 1.00 | .00 | 1.00 |
| | | ROUND 4: PROPORTION OF SAMPLE BREASTFEEDING | 243 | .04 | .19 | .00 | .00 | 1.00 | .00 | .00 |
| | | ROUND 1: SERUM RETINOL (umol/L) | 243 | .593 | .240 | .552 | .115 | 1.933 | .423 | .710 |
| | | ROUND 4: SERUM RETINOL (umol/L) | 243 | .671 | .245 | .640 | .103 | 1.649 | .506 | .778 |
| | | ROUND 1: HEMOGLOBIN (g/L): REFERENCE CHILD | 243 | 8.0 | 1.7 | 7.9 | 4.0 | 13.1 | 6.9 | 9.0 |
| | | ROUND 4: HEMOGLOBIN (g/L): REFERENCE CHILD | 243 | 9.6 | 1.5 | 9.7 | 4.8 | 13.6 | 8.7 | 10.7 |

SAMPLE SIZE: 733 CHILDREN, EXCLUDING 8 INTERVENTION CHILDREN WHO RECEIVED CAPSULES BETWEEN ROUND 2 AND ROUND 4: 490 INTERVENTION, 243 CONTROL.

**FIGURE 6.2**

**CUMULATIVE DENSITY FUNCTIONS FOR SERUM RETINOL IN REFERENCE CHILDREN AT BASELINE AND AT ROUND 4 (SAMPLE 1)**



## TABLE 6.2

**SAMPLE CHARACTERISTICS, SERUM RETINOL, HEMOGLOBIN, AND ACUTE ILLNESS STATUS FOR REFERENCE CHILDREN AT BASELINE BY ARE**

| | | ALL CASES | | AREA | | | |
|---|---|---|---|---|---|---|---|
| | | | | INTERVENTION | | CONTROL | |
| | | Count | Col % | Count | Col % | Count | Col % |
| AGE (IN MONTHS) BY CATEGORY OF REFERENCE CHILD: ROUND 1 | LESS THAN 6 MONTHS | 44 | 6.0% | 30 | 6.1% | 14 | 5.8% |
| | 6-11.9 MONTHS | 172 | 23.5% | 117 | 23.9% | 55 | 22.6% |
| | 12-17.9 MONTHS | 183 | 25.0% | 119 | 24.3% | 64 | 26.3% |
| | 18-23.4 MONTHS | 157 | 21.4% | 99 | 20.2% | 58 | 23.9% |
| | 24-38 MONTHS | 177 | 24.1% | 125 | 25.5% | 52 | 21.4% |
| SEX | FEMALE | 400 | 54.6% | 273 | 55.7% | 127 | 52.3% |
| | MALE | 333 | 45.4% | 217 | 44.3% | 116 | 47.7% |
| STILL BREASTFEEDING | YES | 455 | 62.2% | 299 | 61.0% | 156 | 64.7% |
| ROUND 1: LOW HEMOGLOBIN STATUS | AT LEAST 7.0 g/L | 563 | 76.8% | 383 | 78.2% | 180 | 74.1% |
| | BELOW 7.0 g/L | 170 | 23.2% | 107 | 21.8% | 63 | 25.9% |
| PLASMA RETINOL < 0.70 umol/L: BASELINE | NOT DEFICIENT: AT LEAST 0.70 umol/L | 211 | 28.8% | 145 | 29.6% | 66 | 27.2% |
| | DEFICIENT: BELOW 0.70 umol/L | 522 | 71.2% | 345 | 70.4% | 177 | 72.8% |
| SERUM RETINOL <0.35 umol/L: BASELINE | NOT SEVERELY DEFICIENT: AT LEAST 0.35 umol/L | 655 | 89.4% | 444 | 90.6% | 211 | 86.8% |
| | SEVERELY DEFICIENT: <0.35 umol/L | 78 | 10.6% | 46 | 9.4% | 32 | 13.2% |
| INFECTION EXISTS: | CRP ≤5 mg/L: ROUND 1 | 264 | 36.0% | 200 | 40.8% | 64 | 26.3% |
| CRP>5 mg/L: BASELINE | CRP> 5 mg/L: ROUND 1 | 469 | 64.0% | 290 | 59.2% | 179 | 73.7% |

SAMPLE SIZE: 733 CHILDREN, EXCLUDING 8 INTERVENTION CHILDREN WHO RECEIVED VITAMIN A CAPSULES BETWEEN ROUND 2 & ROUND 4: 490 INTERVENTION 243 CONTROL

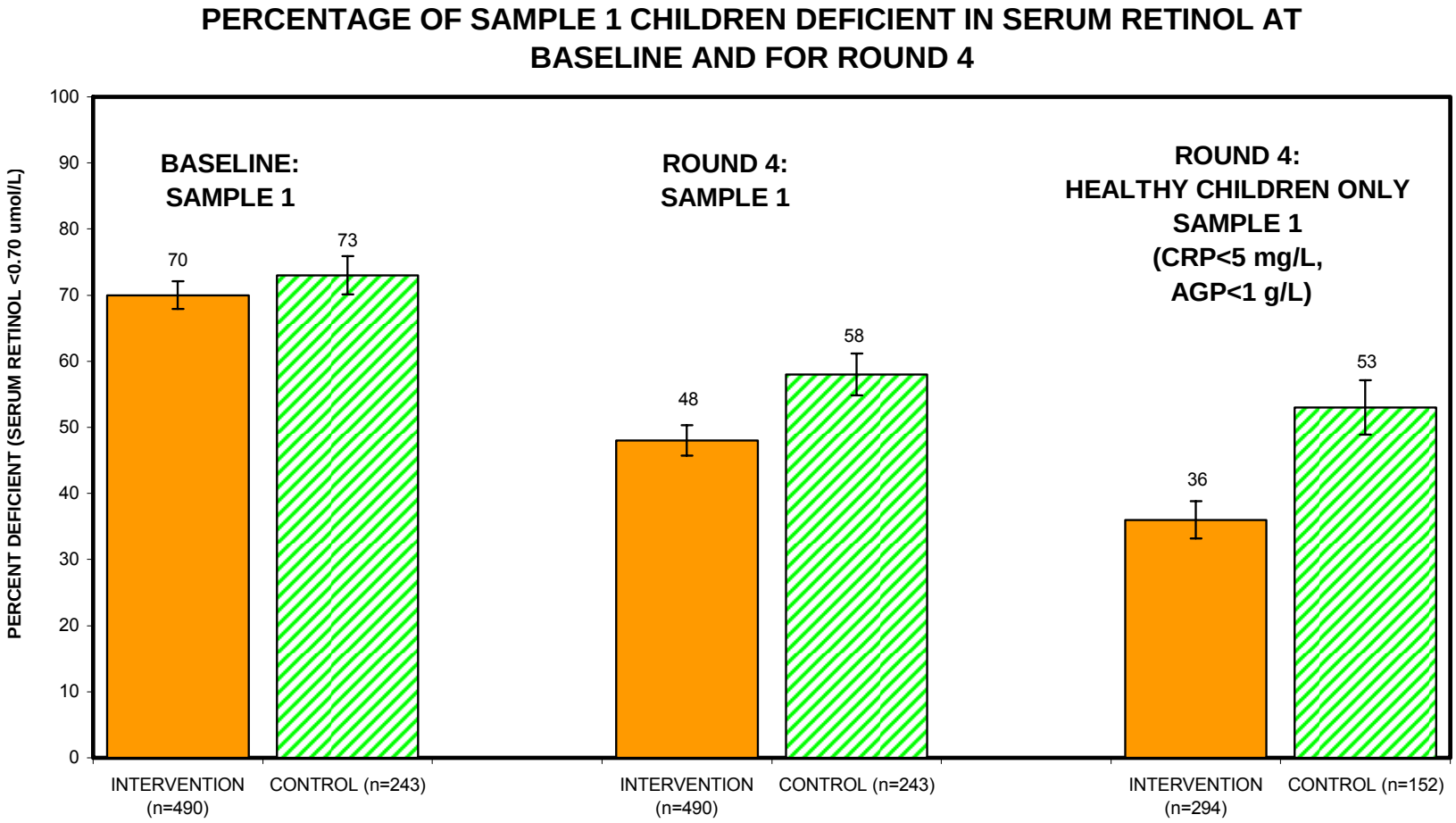
## TABLE 6.3

**SAMPLE CHARACTERISTICS, SERUM RETINOL, HEMOGLOBIN, AND ILLNESS STATUS FOR REFERENCE CHILDREN AT ROUND 4 BY AI :A**

| | | ALL CASES | | AREA | | | |
|---|---|---|---|---|---|---|---|
| | | | | INTERVENTION | | CONTROL | |
| | | Count | Col % | Count | Col % | Count | Col % |
| ROUND 4: AGE IN MONTHS BY CATEGORY: REFERENCE CHILD | 21-23 MONTHS | 63 | 8.6% | 44 | 9.0% | 19 | 7.8% |
| | 24-35 MONTHS | 353 | 48.2% | 230 | 46.9% | 123 | 50.6% |
| | 36-55 MONTHS | 317 | 43.2% | 216 | 44.1% | 101 | 41.6% |
| SEX | FEMALE | 400 | 54.6% | 273 | 55.7% | 127 | 52.3% |
| | MALE | 333 | 45.4% | 217 | 44.3% | 116 | 47.7% |
| ROUND 4: STILL BREASTFEEDING | YES | 42 | 5.7% | 33 | 6.7% | 9 | 3.7% |
| ROUND 4: LOW HEMOGLOBIN STATUS | AT LEAST 7.0 g/L | 711 | 97.0% | 475 | 96.9% | 236 | 97.1% |
| | BELOW 7.0 g/L | 22 | 3.0% | 15 | 3.1% | 7 | 2.9% |
| PLASMA RETINOL < 0.70 umol/L: ROUND 4 | NOT DEFICIENT: AT LEAST 0.70 umol/L | 359 | 49.0% | 257 | 52.4% | 102 | 42.0% |
| | DEFICIENT: BELOW 0.70 umol/L | 374 | 51.0% | 233 | 47.6% | 141 | 58.0% |
| PLASMA RETINOL LESS THAN .35 umol/L | NOT SEVERELY DEFICIENT: AT LEAST 0.35 umol/L | 695 | 94.8% | 464 | 94.7% | 231 | 95.1% |
| | SEVERELY DEFICIENT: BELOW 0.35 umol/L | 38 | 5.2% | 26 | 5.3% | 12 | 4.9% |
| INFECTION EXISTS (CRP>5): ROUND 4 | CRP ABOVE 5 mg/L | 260 | 35.5% | 180 | 36.7% | 80 | 32.9% |
| ELEVATED AGP EXISTS (AGP>1.0): ROUND 4 | AGP ABOVE 1.0 g/L | 92 | 12.6% | 65 | 13.3% | 27 | 11.1% |
| NO ELEVATED CRP OR AGP: ROUND 4 | APPARENTLY HEALTHLY: ROUND 4 | 446 | 60.8% | 294 | 60.0% | 152 | 62.6% |

SAMPLE SIZE: 733 CHILDREN, EXCLUDING 8 INTERVENTION CHILDREN WHO RECEIVED VITAMIN A CAPSULES BETWEEN ROUND 2 & ROUND 4: 490 INTERVENTION
243 CONTROL

**FIGURE 6.3**




NOTE: SAMPLE 1 CONSISTS OF ALL CHILDREN EXCLUDING 8 INTERVENTION CHILDREN RECEIVING VITAMIN A CAPSULES BETWEEN ROUND 2 & ROUND 4. HEALTHLY CHILDREN SAMPLE (n=446) EXCLUDES ILL CHILDREN & 8 INTERVENTION CHILDREN RECEIVING VITAMIN A CAPSULES BETWEEN ROUND 2 & ROUND 4.

## TABLE 6.4

**SAMPLE DESCRIPTION AND SERUM RETINOL STATUS IN APPARENTLY HEALTHY CHILDREN IN ROUND 4: PERCENTAGE IN EACH CATEGORY BY AREA**

| | | ALL CASES | | AREA | | | |
|---|---|---|---|---|---|---|---|
| | | | | INTERVENTION | | CONTROL | |
| | | Count | Col % | Count | Col % | Count | Col % |
| AGE CATEGORY IN MONTHS OF REFERENCE CHILD | 21-23 MONTHS | 33 | 7.4% | 21 | 7.1% | 12 | 7.9% |
| | 24-35 MONTHS | 210 | 47.1% | 136 | 46.3% | 74 | 48.7% |
| | 36-55 MONTHS | 203 | 45.5% | 137 | 46.6% | 66 | 43.4% |
| SEX OF CHILD | FEMALE | 257 | 57.6% | 174 | 59.2% | 83 | 54.6% |
| | MALE | 189 | 42.4% | 120 | 40.8% | 69 | 45.4% |
| STILL BREASTFEEDING IN ROUND 4 | NO | 427 | 95.7% | 279 | 94.9% | 148 | 97.4% |
| | YES | 19 | 4.3% | 15 | 5.1% | 4 | 2.6% |
| PLASMA RETINOL LESS THAN .70 umol/L | NOT DEFICIENT: AT LEAST 0.70 umol/L | 259 | 58.1% | 187 | 63.6% | 72 | 47.4% |
| | DEFICIENT: BELOW 0.70 umol/L | 187 | 41.9% | 107 | 36.4% | 80 | 52.6% |
| PLASMA RETINOL LESS THAN .35 umol/L | NOT SEVERELY DEFICIENT: AT LEAST 0.35 umol/L | 438 | 98.2% | 292 | 99.3% | 146 | 96.1% |
| | SEVERELY DEFICIENT: BELOW 0.35 umol/L | 8 | 1.8% | 2 | .7% | 6 | 3.9% |

SAMPLE SIZE: 446 SAMPLE OF HEALTHY CHILDREN EXCLUDES 8 INTERVENTION CHILDREN RECEIVING VITAMIN A CAPSULES BETWEEN ROUND 2 & ROUND 4. 294 INTERVENTION CHILDREN; 152 CONTROL CHILDREN INCLUDE 24 RECEIVING CAPSULES BETWEEN ROUND 2 & ROUND 4.

## TABLE 6.5

**SAMPLE CHARACTERISTICS AND SERUM RETINOL STATUS FOR APPARENTLY HEALTHY CHILDREN AT ROUND 4 BY AREA: MEANS, MEDIANS, AND PERCENTILES**

| | | | Count | Mean | Std Deviation | Median | Minimum | Maximum | Percentile 25 | Percentile 75 |
|---|---|---|---|---|---|---|---|---|---|---|
| ALL CASES | | AGE IN MONTHS OF REFERENCE CHILD (ROUND 4) | 446 | 35 | 8 | 35 | 21 | 53 | 29 | 42 |
| | | PROPORTION OF SAMPLE THAT IS MALE | 446 | .42 | .49 | .00 | .00 | 1.00 | .00 | 1.00 |
| | | ROUND 4: PROPORTION OF SAMPLE BREASTFEEDING | 446 | .04 | .20 | .00 | .00 | 1.00 | .00 | .00 |
| | | ROUND 4: SERUM RETINOL (umol/L) | 446 | .777 | .267 | .753 | .217 | 1.885 | .584 | .927 |
| AREA | INTERVENTION | AGE IN MONTHS OF REFERENCE CHILD (ROUND 4) | 294 | 36 | 8 | 35 | 21 | 53 | 29 | 43 |
| | | PROPORTION OF SAMPLE THAT IS MALE | 294 | .41 | .49 | .00 | .00 | 1.00 | .00 | 1.00 |
| | | ROUND 4: PROPORTION OF SAMPLE BREASTFEEDING | 294 | .05 | .22 | .00 | .00 | 1.00 | .00 | .00 |
| | | ROUND 4: SERUM RETINOL (umol/L) | 294 | .811 | .262 | .802 | .232 | 1.885 | .609 | .968 |
| | CONTROL | AGE IN MONTHS OF REFERENCE CHILD (ROUND 4) | 152 | 35 | 7 | 33 | 22 | 50 | 29 | 41 |
| | | PROPORTION OF SAMPLE THAT IS MALE | 152 | .45 | .50 | .00 | .00 | 1.00 | .00 | 1.00 |
| | | ROUND 4: PROPORTION OF SAMPLE BREASTFEEDING | 152 | .03 | .16 | .00 | .00 | 1.00 | .00 | .00 |
| | | ROUND 4: SERUM RETINOL (umol/L) | 152 | .712 | .266 | .661 | .217 | 1.649 | .524 | .841 |

SAMPLE SIZE: 446 APPARENTLY HEALTHY CHILDREN IN SAMPLE 1, WHICH EXCLUDES 8 INTERVENTION CHILDREN WHO RECEIVED VITAMIN A CAPSULES BETWEEN ROUND 2 & ROUN 4: 294 INTERVENTION, 152 CONTROL.

## TABLE 6.6

**MEAN AND MEDIUM SERUM RETINOL VALUES IN ROUND 4 BY STAGE OF INFECTION AND BY AREA**

| | AREA | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | INTERVENTION | | | | CONTROL | | | |
| | Count | Mean | Std Deviation | Median | Count | Mean | Std Deviation | Median |
| NOT SUFFERING FROM CHRONIC OR ACUTE ILLNESS: ROUND 4 | 294 | .811 | .262 | .802 | 152 | .712 | .266 | .661 |
| INCUBATION OR BEGINNING STAGE OF INFECTION | 131 | .638 | .224 | .597 | 64 | .595 | .201 | .550 |
| MIDDLE OF INFECTION OR EARLY CONVALESCENCE | 49 | .580 | .262 | .551 | 16 | .592 | .177 | .609 |
| CONVALESCENCE STAGE | 16 | .601 | .187 | .599 | 11 | .659 | .123 | .676 |

SAMPLE SIZE: 733 TOTAL SAMPLE EXCLUDES 8 INTERVENTION CHILDREN RECEIVING VITAMIN A CAPSULES BETWEEN ROUND 2 & ROUND 4. 490 INTERVENTION CHILDREN; 243 CONTROL CHILDREN INCLUDE 24 RECEIVING CAPSULES FROM HEALTH FACILITIES BETWEEN ROUND 2 & ROUND 4.

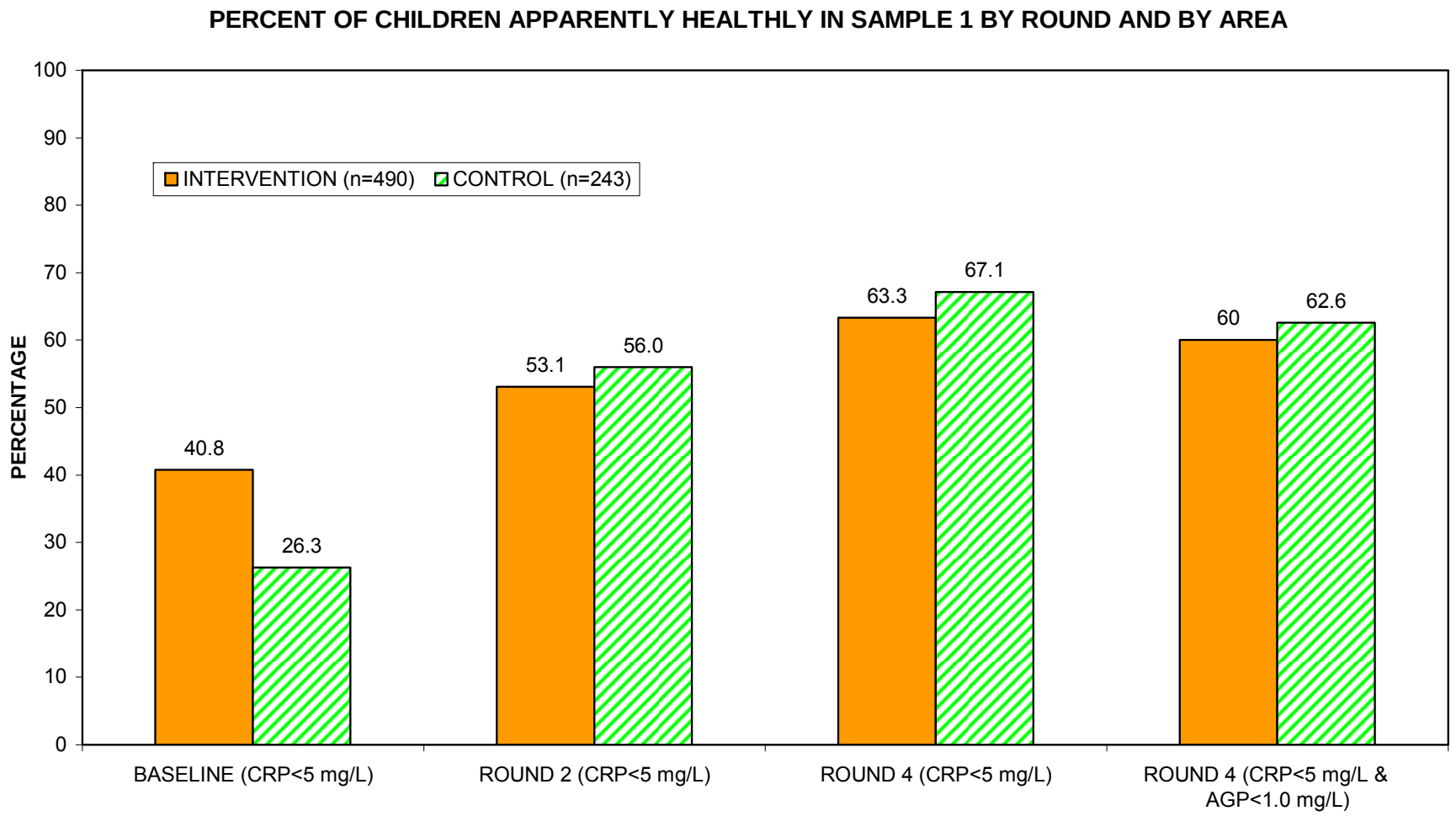
## TABLE 6.7

**DISTRIBUTION OF REFERENCE CHILDREN BETWEEN DIFFERENT STAGES OF INFECTION: PERCENTAGES BY AREA**

| | ALL CASES | | AREA | | | |
|---|---|---|---|---|---|---|
| | | | INTERVENTION | | CONTROL | |
| | Count | Col % | Count | Col % | Count | Col % |
| APPARENTLY HEALTHLY: ROUND 4 | 446 | 60.8% | 294 | 60.0% | 152 | 62.6% |
| INCUBATION STAGE: AGP<1.0 g/L; CRP>5.0 mg/L | 195 | 26.6% | 131 | 26.7% | 64 | 26.3% |
| INFECTION PRESENT: AGP>1.0 g/L; CRP>5.0 mg/L | 65 | 8.9% | 49 | 10.0% | 16 | 6.6% |
| CONVALESCENCE: AGP>1.0 g/L; CRP<5.0 mg/L | 27 | 3.7% | 16 | 3.3% | 11 | 4.5% |

SAMPLE SIZE: 733 TOTAL SAMPLE EXCLUDES 8 INTERVENTION CHILDREN RECEIVING VITAMIN A CAPSULES BETWEEN ROUND 2 & ROUND 4. 490 INTERVENTION CHILDREN; 243 CONTROL CHILDREN INCLUDE 24 RECEIVING CAPSULES FROM HEALTH FACILITIES BETWEEN ROUND 2 & ROUND 4.

**FIGURE 6.4**


PERCENT OF CHILDREN APPARENTLY HEALTHLY IN SAMPLE 1 BY ROUND AND BY AREA
PERCENTAGE
100
90
80
70
60
50
40
30
20
10
0
INTERVENTION (n=490)
CONTROL (n=243)
40.8
26.3
53.1
56.0
63.3
67.1
60
62.6
BASELINE (CRP<5 mg/L)
ROUND 2 (CRP<5 mg/L)
ROUND 4 (CRP<5 mg/L)
ROUND 4 (CRP<5 mg/L & AGP<1.0 mg/L)

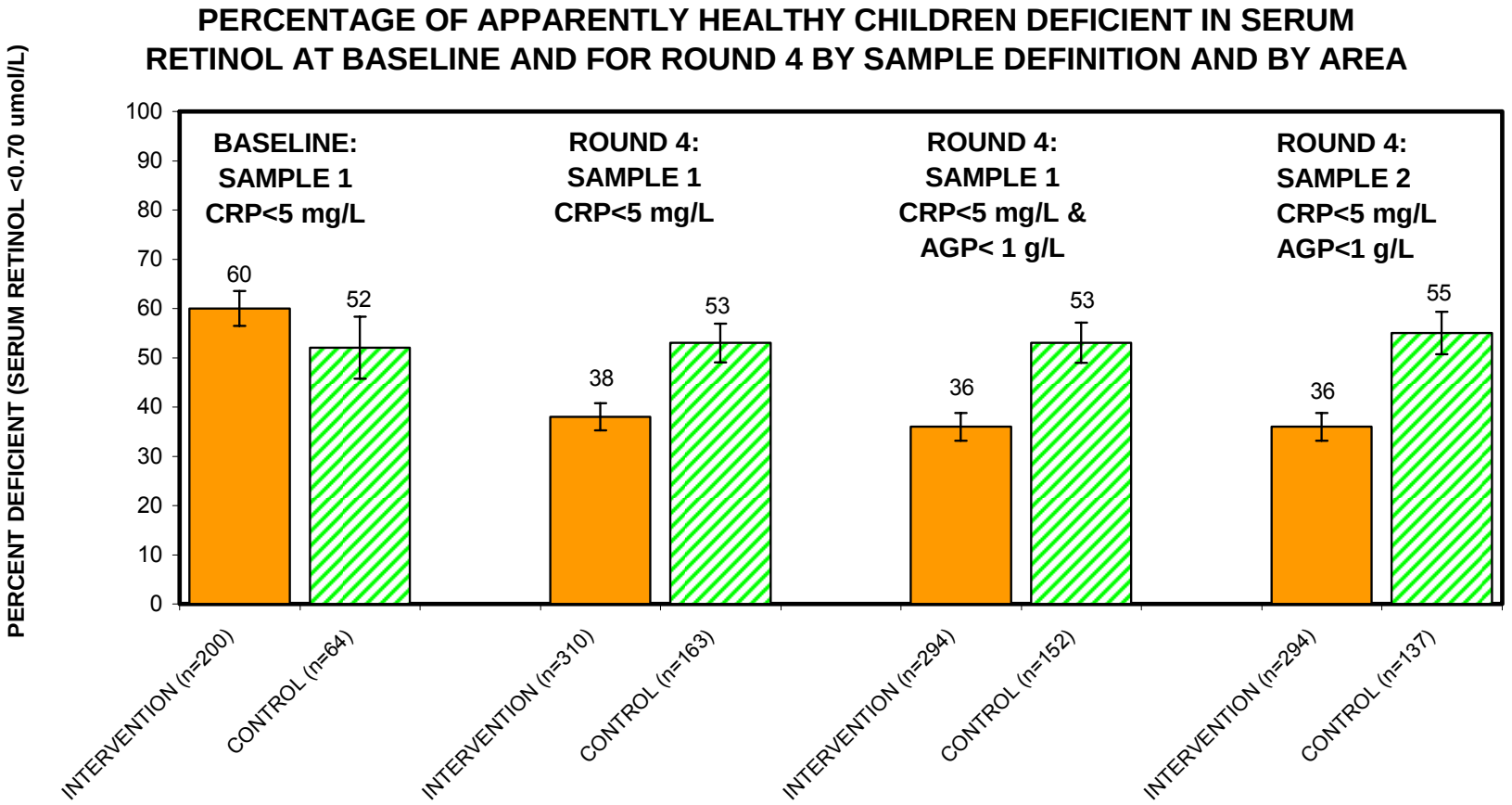
## TABLE 6.8

**SAMPLE DESCRIPTION AND SERUM RETINOL STATUS IN APPARENTLY HEALTHY CHILDREN AT BASELINE: PERCENTAGE IN EACH CATEGORY BY AREA**

| | | ALL CASES | | AREA | | | |
|---|---|---|---|---|---|---|---|
| | | | | INTERVENTION | | CONTROL | |
| | | Count | Col % | Count | Col % | Count | Col % |
| AGE (IN MONTHS) BY CATEGORY OF REFERENCE CHILD: ROUND 1 | LESS THAN 6 MONTHS | 22 | 8.3% | 15 | 7.5% | 7 | 10.9% |
| | 6-11.9 MONTHS | 68 | 25.8% | 50 | 25.0% | 18 | 28.1% |
| | 12-17.9 MONTHS | 51 | 19.3% | 38 | 19.0% | 13 | 20.3% |
| | 18-23.4 MONTHS | 57 | 21.6% | 42 | 21.0% | 15 | 23.4% |
| | 24-38 MONTHS | 66 | 25.0% | 55 | 27.5% | 11 | 17.2% |
| SEX | FEMALE | 141 | 53.4% | 111 | 55.5% | 30 | 46.9% |
| | MALE | 123 | 46.6% | 89 | 44.5% | 34 | 53.1% |
| STILL BREASTFEEDING | NO | 106 | 40.3% | 86 | 43.0% | 20 | 31.7% |
| | YES | 157 | 59.7% | 114 | 57.0% | 43 | 68.3% |
| PLASMA RETINOL < 0.70 umol/L: BASELINE | NOT DEFICIENT: AT LEAST 0.70 umol/L | 112 | 42.4% | 81 | 40.5% | 31 | 48.4% |
| | DEFICIENT: BELOW 0.70 umol/L | 152 | 57.6% | 119 | 59.5% | 33 | 51.6% |
| SERUM RETINOL <0.35 umol/L: BASELINE | NOT SEVERELY DEFICIENT: AT LEAST 0.35 umol/L | 254 | 96.2% | 192 | 96.0% | 62 | 96.9% |
| | SEVERELY DEFICIENT: <0.35 umol/L | 10 | 3.8% | 8 | 4.0% | 2 | 3.1% |

SAMPLE SIZE: 264 SAMPLE OF HEALTHY CHILDREN EXCLUDES 8 INTERVENTION CHILDREN RECEIVING VITAMIN A CAPSULES BETWEEN ROUND 2 & ROUND 4. 200 INTERVENTION CHILDREN; 64 CONTROL CHILDREN. APPARENTLY HEALTHY AT BASELINE DEFINED AS CRP VALUES<5 mg/L.

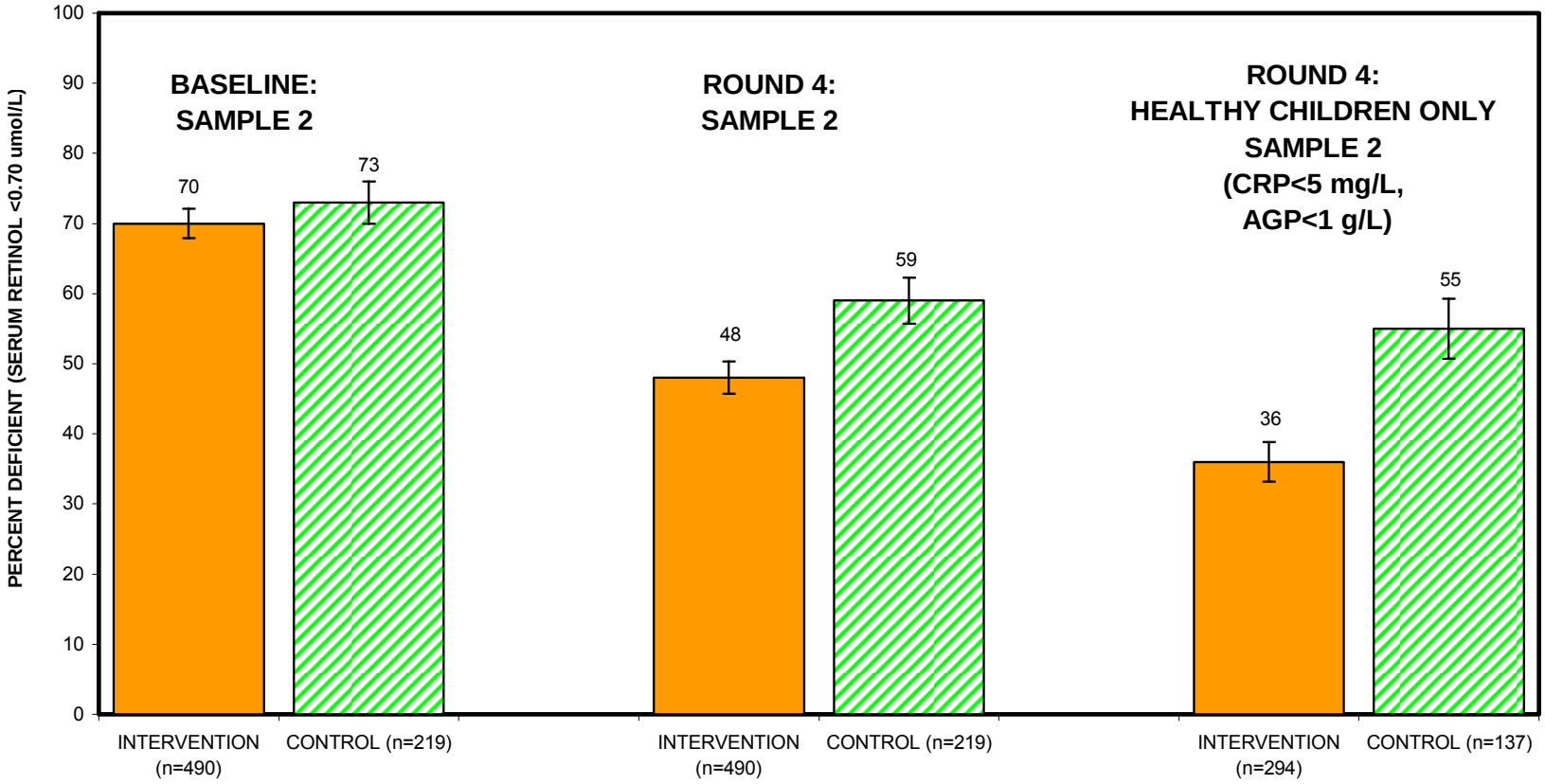
**FIGURE 6.5**




NOTE: Definition of apparently healthy child based on absence of elevated acute proteins measured in particular round.
Sample 1 consists of all children completing study except 8 intervention children receiving capsules between round 2 & round 4.
Sample 2 consists of all children excluding 8 intervention and 24 control children receiving capsules between round 2 & round 4. No statistically significant difference exists between intervention & control at baseline. All round 4 samples are significantly different between groups at p=0.005.

**FIGURE 6.6**

## PERCENTAGE OF SAMPLE 2 CHILDREN DEFICIENT IN SERUM RETINOL AT BASELINE AND FOR ROUND 4




NOTE: SAMPLE 2 CONSISTS OF ALL CHILDREN EXCLUDING 8 INTERVENTION AND 24 CONTROL CHILDREN RECEIVING VITAMIN A CAPSULES BETWEEN ROUND 2 & ROUND 4.
HEALTHLY CHILDREN SAMPLE (n=433) EXCLUDES ILL CHILDREN & 8 INTERVENTION CHILDREN & 24 CONTROL CHILDREN RECEIVING VITAMIN A CAPSULES BETWEEN ROUND 2 & ROUND 4.

**FIGURE 6.7**

**CUMULATIVE DENSITY FUNCTIONS FOR SERUM RETINOL IN APPARENTLY HEALTHY REFERENCE CHILDREN AT BASELINE AND AT ROUND 4 (SAMPLE 1)**

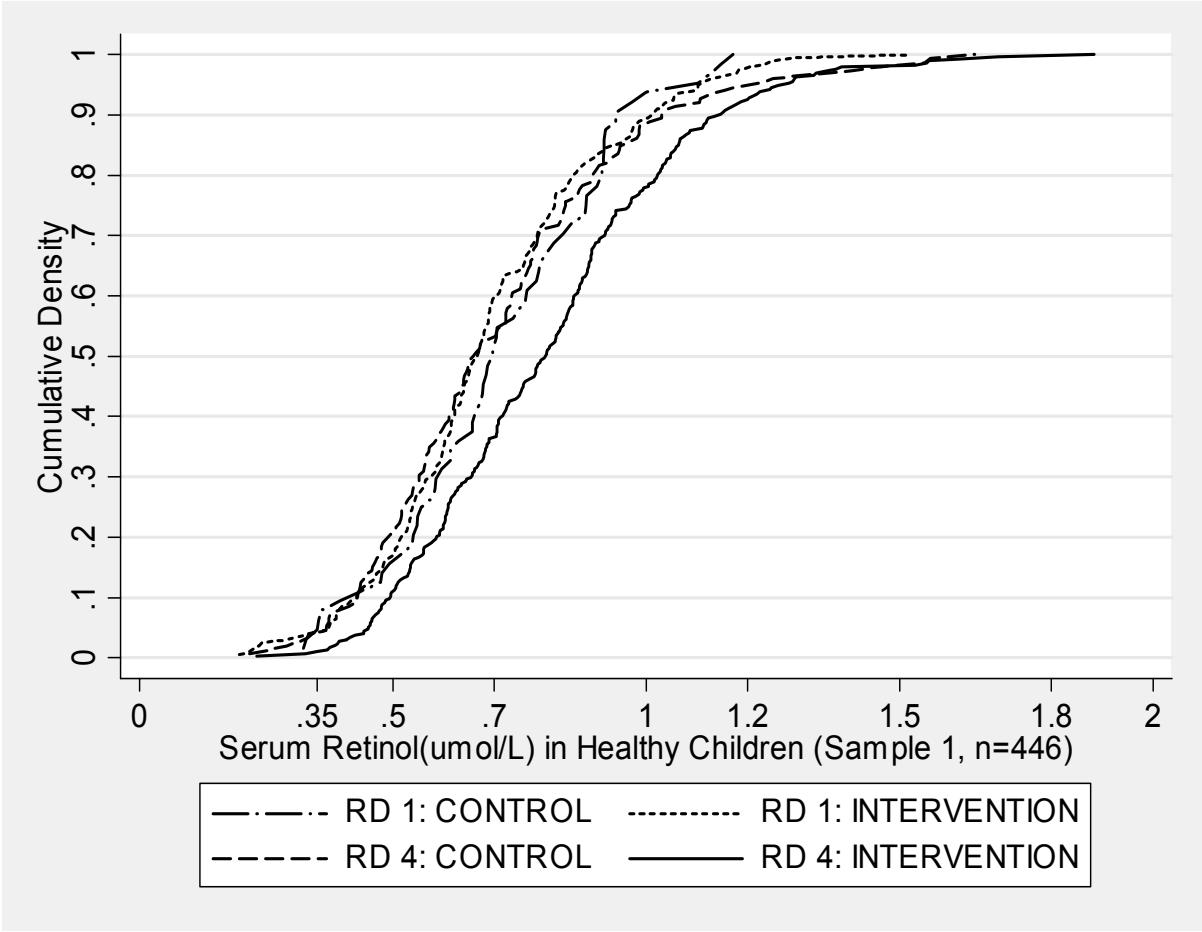


**TABLE 6.9**

## ROUND 1: PREVALENCE OF HIGH SERUM C-REACTIVE PROTEIN (CRP) AND REPORTED MORBIDITY IN THE REFERENCE CHILD BY AREA (MAY-JUNE 2003)

| Variable | All | Intervention | Control | P-Value |
|---|---|---|---|---|
| | % | % | % | |
| Acute Infection (CRP>5.0 mg/L) | 63.7 | 58.8 | 73.7 | 0.000 |
| ***Past two-weeks morbidity recall*** | | | | |
| Diarrhea | 40.4 | 39.6 | 42.1 | 0.523 |
| Acute Respiratory Infection (ARI) | 22.8 | 23.5 | 21.5 | 0.576 |
| Fever | 62.3 | 64.7 | 57.4 | 0.063 |
| Other Disease | 12.2 | 11.8 | 12.8 | 0.720 |
| Any form of illness | 80.8 | 82.1 | 78.2 | 0.233 |
| ***Morbidity Recall Over long Period*** | | | | |
| Since birth has child been hospitalized overnight at lease once because of illness | 6.5 | 5.4 | 8.7 | 0.111 |

Sample Size: Intervention =498; Control=242 except CRP=243. Morbidity was based on recall by the principal female caregiver of reference child.

P-value from Chi-Square test using two tailed Fisher's exact test of significance. Among other disease during the past 2 weeks, there were 2 cases of measles. Any form of illness in past 2 weeks was computed from whether the child had any one of diarrhea, ARI, fever or other disease.

**TABLE 6.10**

## ROUND 2: PREVALENCE OF HIGH SERUM C-REACTIVE PROTEIN (CRP) AND REPORTED MORBIDITY IN THE REFERENCE CHILD BY AREA (NOVEMBER 2003-JANUARY 2004)

| Variable | All | Intervention | Control | P-Value |
|---|---|---|---|---|
| | % | % | % | |
| Acute Infection (CRP>5.0 mg/L) | 45.7 | 46.6 | 44.0 | 0.530 |
| ***Past two-weeks morbidity recall*** | | | | |
| Diarrhea | 23.9 | 26.1 | 19.4 | 0.053 |
| Acute Respiratory Infection (ARI) | 6.6 | 7.7 | 4.5 | 0.118 |
| Fever | 41.4 | 42.8 | 38.4 | 0.266 |
| Other Disease | 10.7 | 11.7 | 8.7 | 0.254 |
| Any form of illness | 61.1 | 65.5 | 52.3 | 0.001 |
| ***Morbidity Recall Over long Period*** | | | | |
| Measles (since January 2003) | 9.8 | 9.3 | 10.7 | 0.597 |
| Serious Disease Besides Measles (Since January 2003) | 10.6 | 10.5 | 10.7 | 0.899 |

Sample Size: Intervention =495; Control=242, except CRP=243. P-value derived Chi-Square test using two tailed Fisher's exact test of significance.

Morbidity was based on recall by the principal female caregiver of reference child.

Any form of illness in past 2 weeks was computed from whether the child had any one of diarrhea, ARI, fever or other disease.

**TABLE 6.11**

## ROUND 4: PREVALENCE OF HIGH SERUM C-REACTIVE PROTEIN (CRP) AND ALPHA-1-GLYCOPROTEIN (AGP) AND REPORTED MORBIDITY BY AREA (NOVEMBER 2004-JANUARY 2005)

| Variable | All | Intervention | Control | P-Value |
|---|---|---|---|---|
| | % | % | % | |
| Acute Infection (CRP>5.0 mg/L) | 35.5 | 36.7 | 32.9 | 0.327 |
| Acute Infection (AGP>1.0 mg/L) | 12.8 | 13.7 | 11.1 | 0.352 |
| ***Past two-weeks morbidity recall*** | | | | |
| Diarrhea | 9.3 | 8.8 | 10.3 | 0.504 |
| Acute Respiratory Infection (ARI) | 2.7 | 3.2 | 1.6 | 0.333 |
| Fever | 25.1 | 24.9 | 25.5 | 0.857 |
| Other Disease | 6.4 | 4.4 | 10.4 | 0.003 |
| Any form of illness | 36.8 | 35.5 | 39.5 | 0.293 |
| ***Morbidity Recall Over long Period*** | | | | |
| Measles (Since January 2004) | 0.8 | 0.8 | 0.8 | 1.000 |
| Serious Disease Besides Measles (Since January 2004) | 7.4 | 8.2 | 5.8 | 0.296 |

Sample Size: Intervention =498; Control=243. Morbidity was based on recall by the principal female caregiver of reference child.

P-value derived from Chi-Square test using two tailed Fisher's exact test of significance

Any form of illness in past 2 weeks was computed from whether the child had any one of diarrhea, ARI, fever or other disease.

**TABLE 6.12**

## Relationship Between Serum Acute Phase Proteins and Morbidity (recall for past 2 weeks) In Reference Child By Survey Round

| Variable | Correlation Coefficient (r) | | | |
|---|---|---|---|---|
| | CRP | | | AGP |
| | Baseline | Round 2 | Round 4 | Only Round 4 |
| Diarrhea | 0.006 | 0.029 | -0.010 | 0.019 |
| Acute Respiratory Infection | 0.003 | 0.001 | 0.020 | 0.031 |
| Fever | 0.077* | 0.113** | 0.112** | 0.076* |
| Other Disease | 0.070 | 0.003 | -0.016 | -0.019 |
| Any illness in last 2 weeks | 0.059 | 0.063 | 0.08* | 0.061 |

* Spearman's correlation significant (2-tailed test) for p<0.05.
**Spearman's correlation significant (2-tailed test) for p<0.01.

## TABLE 6.13

### ROUND 1: PROPORTIONS OF PRIMARY CONSULTATIONS FOR TREATMENT OF REFERENCE CHILD FOR VARIOUS INFECTIONS BY AREA

| Type of Consultation | Intervention | | | | Control | | | |
|---|---|---|---|---|---|---|---|---|
| | Diarrhea % n=197 | ARI % n=117 | Fever % n=332 | Other % n=60 | Diarrhea % n=102 | ARI % n=52 | Fever % n=139 | Other % n=32 |
| Principal Female Caregiver | 23.4 | 31.6 | 31.0 | 30.0 | 36.3 | 34.6 | 42.4 | 28.1 |
| Health Post | 51.3 | 45.3 | 44.4 | 28.3 | 25.5 | 34.6 | 25.9 | 40.6 |
| Health Center | 15.7 | 14.5 | 18.0 | 25.0 | 22.5 | 11.5 | 20.9 | 25.0 |
| Hospital | | | | | 2.0 | 5.8 | 1.4 | |
| Pharmacy | | | | | | | 0.7 | |
| Traditional Midwife | | | | | | | | |
| Witchdoctor/Traditional Healer | 6.6 | 5.1 | 3.1 | 10.0 | 7.8 | 7.7 | 5.8 | 3.1 |
| Treatment by Private Person | 1.5 | 1.7 | 1.9 | 1.7 | 3.9 | 5.8 | 0.7 | |
| Private Clinic | | | | | | | | |
| Husband/Wife | | 0.9 | | | | | | |
| Father/Mother | 1.0 | | 0.6 | 1.7 | 2.0 | | 0.7 | 3.1 |
| Grand Parent | 0.5 | | | | | | | |
| Other Family Member | | 0.9 | 0.6 | 1.7 | | | | |
| Friend | | | 0.3 | | | | | |
| At Market | | | | | | | 1.4 | |
| Health Volunteer or Extensionist | | | | | | | | |
| Neighbor | | | | 1.7 | | | | |

**TABLE 6.14**

**ROUND 2: PROPORTIONS OF PRIMARY CONSULTATIONS FOR TREATMENT OF REFERENCE CHILD FOR VARIOUS INFECTIONS BY AREA**

| Type of Consultation | Intervention | | | | Control | | | |
|---|---|---|---|---|---|---|---|---|
| | Diarrhea | ARI | Fever | Other | Diarrhea | ARI | Fever | Other |
| | % | % | % | % | % | % | % | % |
| | n=129 | n=38 | n=212 | n=59 | n=47 | n=11 | n=93 | n=22 |
| Principal Female Caregiver | 26.3 | 31.6 | 31.6 | 25.4 | 29.8 | 72.7 | 39.8 | 50 |
| Health Post | 37.2 | 28.9 | 33.5 | 23.7 | 19.4 | 18.2 | 25.8 | 9.1 |
| Health Center | 26.4 | 34.2 | 25.9 | 33.9 | 34 | 9.1 | 21.5 | 13.6 |
| Hospital | | | | | | | 1.1 | |
| Pharmacy | | | | | | | | |
| Traditional Midwife | | 2.6 | | | | | | |
| Witchdoctor/Traditional Healer | 3.1 | 2.6 | 4.2 | 5.1 | 10.6 | | 1.1 | 18.2 |
| Treatment by Private Person | 3.1 | | 1.9 | 6.8 | 6.4 | | 6.5 | 4.5 |
| Private Clinic | | | | | | | | |
| Father/Mother | 2.3 | | 1.9 | 1.7 | | | 4.3 | 4.5 |
| Grand Parent | 1.6 | | 0.5 | | | | | |
| Other Family Member | | | | 1.7 | | | | |
| Friend | | | | | | | | |
| At Market | | | | | | | | |
| Health Volunteer or Extensionist | | | 0.5 | | | | | |
| Neighbor | | | | 1.7 | | | | |

## TABLE 6.15

**ROUND 4: PROPORTIONS OF PRIMARY CONSULTATIONS FOR TREATMENT OF REFERENCE CHILD FOR VARIOUS INFECTIONS BY AREA**

| Type of Consultation | Intervention | | | | Control | | | |
|---|---|---|---|---|---|---|---|---|
| | Diarrhea % n=44 | ARI % n=16 | Fever % n=125 | Other % n=23 | Diarrhea % n=25 | ARI % n=4 | Fever % n=62 | Other % n=26 |
| Principal Female Caregiver | 15.9 | 31.8 | 18.4 | 21.7 | 20 | | 22.6 | 15.3 |
| Health Post | 61.4 | 43.8 | 65.6 | 39.1 | 48 | | 38.7 | 19.2 |
| Health Center | 11.4 | 6.3 | 9.6 | 13 | 20 | 100 | 24.2 | 19.2 |
| Hospital | | | | | | | | |
| Pharmacy | | | | | | | | |
| Traditional Midwife | | | | | | | | |
| Witchdoctor/Traditional Healer | 6.8 | 18.8 | 4 | 8.7 | | | 1.6 | 26.9 |
| Treatment by Private Person | | | | 8.7 | 12 | | 9.7 | 7.7 |
| Private Clinic | | | | | | | 1.6 | 3.8 |
| Husband/Wife | | | 0.8 | | | | | |
| Father/Mother | 2.3 | | 0.8 | 4.3 | | | | |
| Grand Parent | | | | | | | 1.6 | |
| Other Family Member | 2.3 | | 0.8 | | | | | 3.8 |
| Friend | | | | 4.3 | | | | 3.8 |
| At Market | | | | | | | | |
| Health Volunteer or Extensionist | | | | | | | | |
| Neighbor | | | | | | | | |

## TABLE 6.16

### ROUND 1: AVERAGE COST OF CONSULTATION FOR TREATMENT OF REFERENCE CHILD (METICAIS) BY TYPE OF ILLNESS AND AREA

| Type of Consultation | Intervention | | | | | | | | Control | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Diarrhea | | ARI | | Fever | | Other | | Diarrhea | | ARI | | Fever | | Other | |
| | Mean | n | Mean | n | Mean | n | Mean | n | Mean | Mean | Mean | n | Mean | n | Mean | n |
| Principal Female Caregiver | 0.6 | 8.0 | 0.4 | 7.0 | 0.7 | 13.0 | 2.0 | 5.0 | 0.2 | 6.0 | 0.3 | 3.0 | 0.5 | 6.0 | | |
| Health Post | 0.9 | 101.0 | 1.3 | 53.0 | 1.0 | 143.0 | 0.9 | 17.0 | 1.9 | 26.0 | 1.1 | 18.0 | 1.3 | 36.0 | 2.9 | 13.0 |
| Health Center | 3.6 | 31.0 | 3.4 | 17.0 | 1.7 | 58.0 | 1.9 | 15.0 | 5.9 | 23.0 | 2.0 | 6.0 | 5.1 | 29.0 | 3.1 | 8.0 |
| Hospital | | | | | | | | | 8.5 | 2.0 | 11.8 | 3.0 | 6.5 | 2.0 | | |
| Pharmacy | | | | | | | | | | | | | 5.0 | 1.0 | | |
| Traditional Midwife | | | | | | | | | | | | | | | | |
| Witchdoctor/Traditional Healer | 5.6 | 13.0 | 5.0 | 6.0 | 8.5 | 10.0 | 17.5 | 6.0 | 17.5 | 8.0 | 7.5 | 4.0 | 6.9 | 8.0 | 40.0 | 1.0 |
| Treatment by Private Person | 9.7 | 3.0 | 4.3 | 2.0 | 2.6 | 6.0 | 5.0 | 1.0 | 2.4 | 4.0 | 1.5 | 3.0 | 2.5 | 1.0 | | |
| Private Clinic | | | | | | | | | | | | | | | | |
| Husband/Wife | | | | | | | | | | | | | | | | |
| Father/Mother | 1.0 | 2.0 | | | 2.5 | 2.0 | 10.0 | 1.0 | 2.0 | 2.0 | | | 0.5 | 1.0 | 2.0 | 1.0 |
| Grand Parent | | | | | | | | | | | | | | | | |
| Other Family Member | | | | | 1.0 | 2.0 | 10.0 | 1.0 | | | | | | | | |
| Friend | 10.0 | 1.0 | | | | | | | | | | | | | | |
| At Market | | | | | | | | | | | | | 3.0 | 2.0 | | |
| Health Volunteer or Extensionist | | | | | | | | | | | | | | | | |
| Neighbor | | | | | | | | | | | | | | | | |

## TABLE 6.17

### ROUND 2: AVERAGE COST OF CONSULTATION FOR TREATMENT OF REFERENCE CHILD (METICAIS) BY TYPE OF ILLNESS AND AREA

| Type of Consultation | Intervention | | | | | | | | Control | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Diarrhea | | ARI | | Fever | | Other | | Diarrhea | | ARI | | Fever | | Other | |
| | Mean | n | Mean | n | Mean | n | Mean | n | Mean | n | Mean | n | Mean | n | Mean | n |
| Principal Female Caregiver | 0.1 | 7.0 | 0.3 | 2.0 | 0.9 | 9.0 | | | 0.2 | 3.0 | | | 0.3 | 6.0 | | |
| Health Post | 0.8 | 48.0 | 3.6 | 11.0 | 1.2 | 71.0 | 0.8 | 14.0 | 1.1 | 9.0 | 1.3 | 2.0 | 1.2 | 24.0 | 1.3 | 2.0 |
| Health Center | 1.2 | 34.0 | 4.7 | 13.0 | 1.1 | 55.0 | 2.3 | 23.0 | 4.1 | 16.0 | 1.0 | 1.0 | 1.7 | 20.0 | 2.7 | 3.0 |
| Hospital | | | | | | | | | | | | | 4.0 | 1.0 | | |
| Pharmacy | | | | | | | | | | | | | | | | |
| Traditional Midwife | | | | | | | | | | | | | | | | |
| Witchdoctor/Traditional Healer | 7.6 | 4.0 | 10.0 | 1.0 | 6.7 | 9.0 | 8.3 | 3.0 | 10.0 | 5.0 | | | | | 17.9 | 4.0 |
| Treatment by Private Person | 3.8 | 4.0 | | | 2.0 | 4.0 | 3.9 | 4.0 | 2.2 | 3.0 | | | 4.9 | 6.0 | 10.0 | 1.0 |
| Private Clinic | | | | | | | | | | | | | | | | |
| Husband/Wife | | | | | | | | | | | | | | | | |
| Father/Mother | 0.7 | 3.0 | | | 0.3 | 4.0 | 5.0 | 1.0 | | | | | 0.3 | 4.0 | 0.5 | 1.0 |
| Grand Parent | 5.0 | 2.0 | | | 1.0 | 1.0 | | | | | | | | | | |
| Other Family Member | | | | | | | | | | | | | | | | |
| Friend | | | | | | | | | | | | | | | | |
| At Market | | | | | | | | | | | | | | | | |
| Health Volunteer or Extensionist | | | | | | | | | | | | | | | | |
| Neighbor | | | | | | | | | | | | | | | | |

## TABLE 6.18

### ROUND 4: AVERAGE COST OF CONSULTATION FOR TREATMENT OF REFERENCE CHILD (METICAIS) BY TYPE OF ILLNESS AND AREA

| Type of Consultation | Intervention | | | | | | | | Control | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Diarrhea | | ARI | | Fever | | Other | | Diarrhea | | ARI | | Fever | | Other | |
| | Mean | n | Mean | n | Mean | n | Mean | n | Mean | n | Mean | n | Mean | n | Mean | n |
| Principal Female Caregiver | 0.4 | 5.0 | | | 0.7 | 5.0 | | | | | | | 1.0 | 2.0 | 12.5 | 1.0 |
| Health Post | 1.4 | 27.0 | 2.3 | 7.0 | 1.3 | 82.0 | 0.9 | 9.0 | 1.9 | 12.0 | | | 2.0 | 24.0 | 1.7 | 5.0 |
| Health Center | 6.2 | 5.0 | 0.5 | 1.0 | 1.4 | 12.0 | 2.8 | 3.0 | 2.1 | 5.0 | 6.4 | 4.0 | 6.6 | 15.0 | 13.1 | 5.0 |
| Hospital | | | | | | | | | | | | | | | | |
| Pharmacy | | | | | | | | | | | | | | | | |
| Traditional Midwife | | | | | | | | | | | | | | | | |
| Witchdoctor/Traditional Healer | 10.0 | 3.0 | 23.3 | 3.0 | 9.3 | 5.0 | 5.0 | 2.0 | | | | | 40.0 | 1.0 | 47.9 | 7.0 |
| Treatment by Private Person | | | | | | | 5.5 | 2.0 | 3.5 | 3.0 | | | 3.3 | 6.0 | 5.5 | 2.0 |
| Private Clinic | | | | | | | | | | | | | 5.0 | 1.0 | 5.0 | 1.0 |
| Husband/Wife | | | | | | | | | | | | | | | | |
| Father/Mother | | | | | | | 1.0 | 1.0 | | | | | | | | |
| Grand Parent | | | | | | | | | | | | | | | | |
| Other Family Member | | | | | | | | | | | | | | | | |
| Friend | | | | | | | | | | | | | | | | |
| At Market | | | | | | | | | | | | | | | | |
| Health Volunteer or Extensionist | | | | | | | | | | | | | | | | |
| Neighbor | | | | | | | | | | | | | | | | |

**TABLE 6.19**

**MEAN Z-SCORES AND MID-UPPER ARM CIRCUMFERENCE AND MEAN CHANGES IN INDICATORS, BY ROUND AND BY STUDY AREA**

| | Area of study | | | | |
|---|---|---|---|---|---|
| | Intervention (n = 498) | | Control (n = 243) | | |
| | Mean | Std dev. | Mean | Std dev. | p-value[a] |
| Baseline HAZ | -2.06 | 1.17 | -2.30 | 1.08 | 0.007 |
| Round 4 HAZ | -1.98 | 1.09 | -2.19 | 1.03 | 0.014 |
| Change in HAZ | 0.08 | 0.81 | 0.12 | 0.76 | 0.521 |
| Baseline WAZ | -1.89 | 1.07 | -2.11 | 1.00 | 0.007 |
| Round 4 WAZ | -1.58 | 0.91 | -1.83 | 0.94 | 0.001 |
| Change in WAZ | 0.30 | 0.85 | 0.27 | 0.73 | 0.613 |
| Baseline WHZ | -0.72 | 0.89 | -0.84 | 0.88 | 0.076 |
| Round 4 WHZ | -0.48 | 0.84 | -0.66 | 0.84 | 0.005 |
| Change in WHZ | 0.24 | 0.90 | 0.18 | 0.86 | 0.342 |
| Baseline MUAC (cm) | 13.76 | 1.41 | 13.61 | 1.32 | 0.190 |
| Round 4 MUAC (cm) | 15.08 | 1.26 | 14.93 | 1.26 | 0.123 |
| Change in MUAC (cm) | 1.33 | 1.26 | 1.32 | 1.12 | 0.908 |

[a]P-value for t-test of equality of means. Independent samples, two-tailed test, equal variances assumed and Levene's test for difference between variance not significant.

## TABLE 6.20

**CHILD AGE AND PREVALENCE OF STUNTING. LOW WEIGHT-FOR-AGE AND WASTING, BY STUDY AREA, AND ROUND AND AMONG SUB-GROUPS WITH GREATEST POTENTIAL TO BENEFIT**

| | Area of study | | |
|---|---|---|---|
| | Intervention | Control | |
| | | | p-value[a] |
| **All reference children (n = 741)** | | | |
| Mean age at baseline (months) | 18 | 17 | 0.65 |
| Mean age at round 4 (months) | 35 | 35 | 0.49 |
| Baseline % stunted (HAZ < -2.00) | 54 | 56 | 0.54 |
| Round 4 % stunted (HAZ < -2.00) | 46 | 54 | 0.05 |
| Baseline % low WAZ (< -2.00) | 48 | 53 | 0.19 |
| Round 4 % low WAZ (< -2.00) | 33 | 42 | 0.02 |
| Baseline % wasted (WHZ < -2.00) | 6 | 11 | 0.03 |
| Round 4 % wasted (WHZ < -2.00) | 3 | 7 | 0.01 |
| **Children < 12 mo old at baseline (n=222)** | | | |
| Mean age at baseline (months) | 8 | 8 | 0.85 |
| Mean age at round 4 (months) | 26 | 26 | 0.99 |
| Baseline % stunted (HAZ < -2.00) | 48 | 38 | 0.14 |
| Round 4 % stunted (HAZ < -2.00) | 54 | 54 | 0.93 |
| Baseline % low WAZ (< -2.00) | 47 | 41 | 0.37 |
| Round 4 % low WAZ (< -2.00) | 49 | 54 | 0.53 |
| Baseline % wasted (WHZ < -2.00) | 5 | 7 | 0.55 |
| Round 4 % wasted (WHZ < -2.00) | 7 | 13 | 0.11 |
| **Children with baseline serum Retinol < 0.35 µmol/L (n=78)** | | | |
| Mean age at baseline (months) | 18 | 17 | 0.63 |
| Mean age at round 4 (months) | 35 | 34 | 0.56 |
| Baseline % stunted (HAZ < -2.00) | 59 | 56 | 1.00 |
| Round 4 % stunted (HAZ < -2.00) | 52 | 59 | 0.65 |
| Baseline % low WAZ (< -2.00) | 57 | 63 | 0.65 |
| Round 4 % low WAZ (< -2.00) | 39 | 63 | 0.07 |
| Baseline % wasted (WHZ < -2.00) | 15 | 19 | 0.76 |
| Round 4 % wasted (WHZ < -2.00) | 0 | 9 | 0.07 |

[a] Mean age: p-value for t-test of equality of means. Independent samples, two-tailed test, equal variances assumed and Levene's test for difference between variance not significant. Differences in prevalence: p-value for Pearson's Chi-square test (two-sided test) of intervention vs control.

**TABLE 6.21**

## CHANGE IN PREVALENCE OF STUNTING, LOW WEIGHT-FOR-AGE, AND WASTING, BY STUDY AREA AND AMONG SUB-GROUPS WITH GREATEST POTENTIAL TO BENEFIT

| | Area of study | | |
|---|---|---|---|
| | **Intervention** | **Control** | |
| | Percentage point change | | p-value[a] |
| **All reference children (n = 741)** | | | |
| Change in prevalence of stunting | -8 | -2 | 0.08 |
| Change in prevalence of low WAZ | -15 | -11 | 0.03 |
| Change in prevalence of wasting | -4 | -4 | 0.24 |
| **Children < 12 mo old at baseline (n=222)** | | | |
| Change in prevalence of stunting | +6 | +16 | 0.28 |
| Change in prevalence of low WAZ | +2 | +13 | 0.19 |
| Change in prevalence of wasting | +1 | +6 | 0.37 |
| **Children with baseline serum retinol < 0.35 µmol/L (n=78)** | | | |
| Change in prevalence of stunting | -7 | +3 | 0.28 |
| Change in prevalence of low WAZ | -17 | 0 | 0.13 |
| Change in prevalence of wasting | -15 | -9 | 0.26 |

[a] Z-test based on the chi-square statistics from McNemar's tests of within group changes in prevalence.