

Improving Collard Growth Through Improved Soil at Namasagali Primary School

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Introduction

- Kamuli District of Uganda has heavily weathered soils with poor soil quality
- Heavily weathered soils can decrease yields of horticulture crops
- Existing soil at Namasagali Primary School is a loamy sand with a pH ranging from 5-6
- Low water retention of loamy sand is problematic during times of little rainfall



Fig 1. Measuring compost



Fig 2. Incorporating chicken litter

Methods

- Created 6, 5 x 9ft raised beds and randomly assigned treatments for each
- Applied 15 kg of chicken litter on each manure treatment beds and 30 kg of kitchen compost on each compost treatment beds
- Transplanted 8 collards into each bed and equipped each plant with a banana hat to reduce water loss from the plant
- Replaced several plants the next day that did not survive the transplant
- Measured number of leaves and height for each plant twice a week
- Watered each plant twice a day with 500 mL of water
- Collected soil samples after 2 weeks at each plot



Fig 3. Raised treatment beds



Fig 4. Watering the collards

Results

- Chicken litter and kitchen compost treatment increased the pH of the soil
- Chicken litter increased the amount of organic matter, nitrogen, phosphorus, and potassium in the soil more than the compost treatment
- Kitchen compost treatment increased the amount of sodium, calcium and magnesium more than the chicken litter treatment

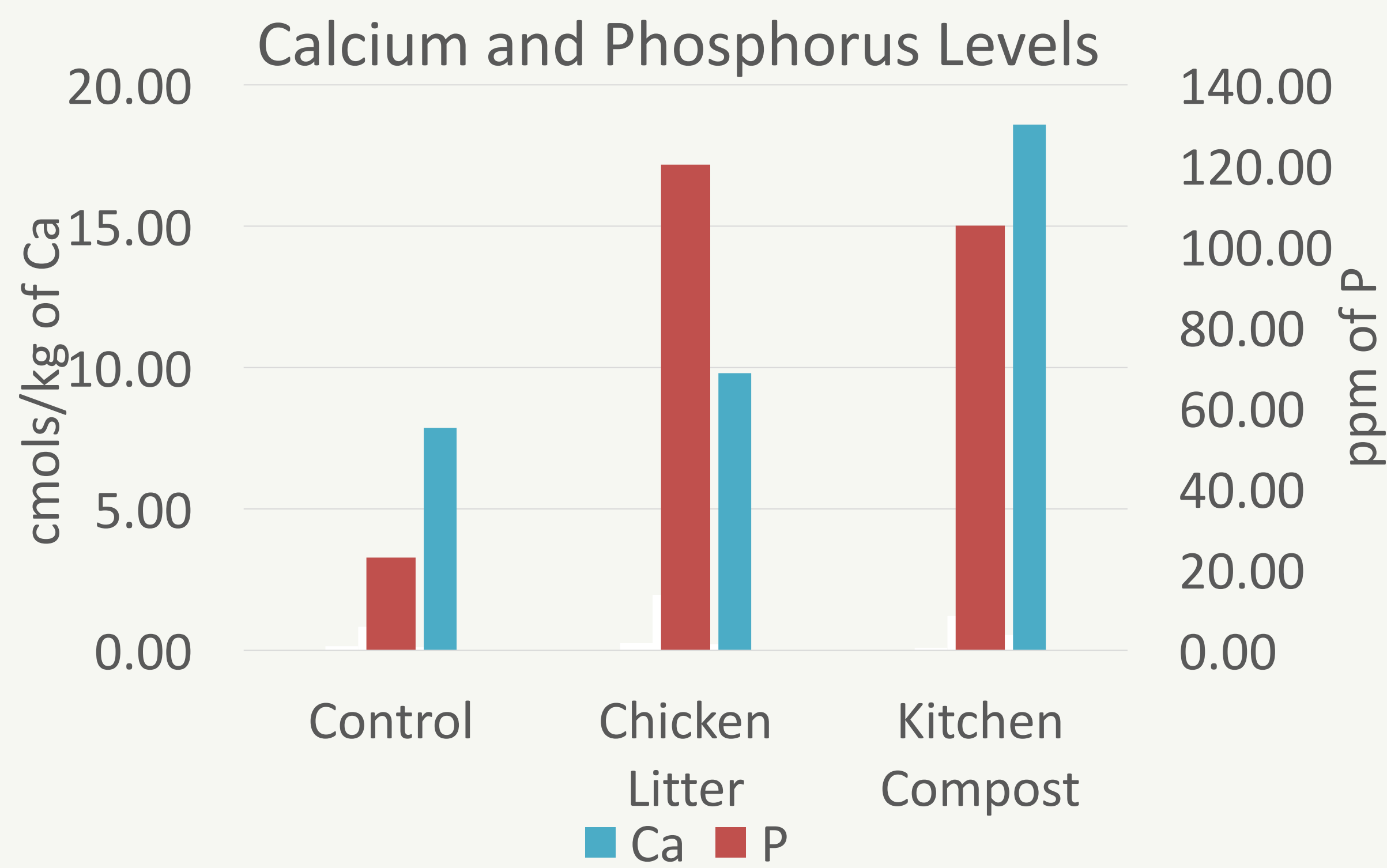


Figure 5. cmols/kg of Ca and ppm of P for soil treatments

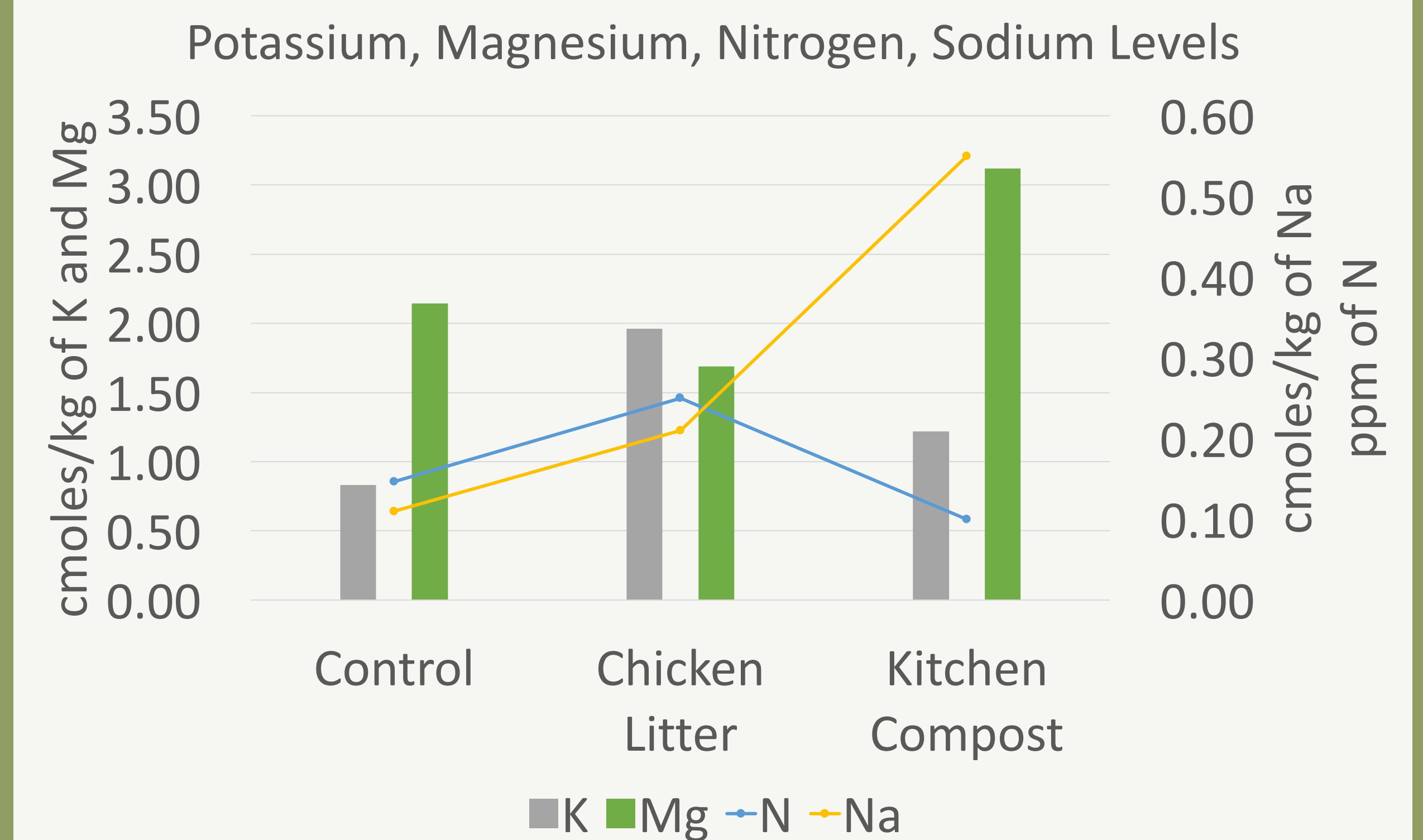


Figure 6. cmols/kg of K, Mg, Na and ppm of N for soil treatments

Treatment	pH	Organic Matter
Control	5.8	1.5
Chicken Litter	7.5	4.9
Kitchen Compost	8.0	1.6

Table 1. pH and organic matter (% age) of soil treatments

Materials

- Collards, Banana hats, Chicken litter, Kitchen compost, Hoe, 500 mL measuring cup

Conclusions and Recommendations

- Adding chicken litter and kitchen compost improves soil fertility
- Chicken litter treatment is better at increasing nutrient content of the soil in most cases

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