Survey of African Indigenous Vegetable (AIV) Production and Marketing Tanzania

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Thanks: Horticulture CRSP /
Prof. Steve Weller, Purdue University

Tanzania – Four regions

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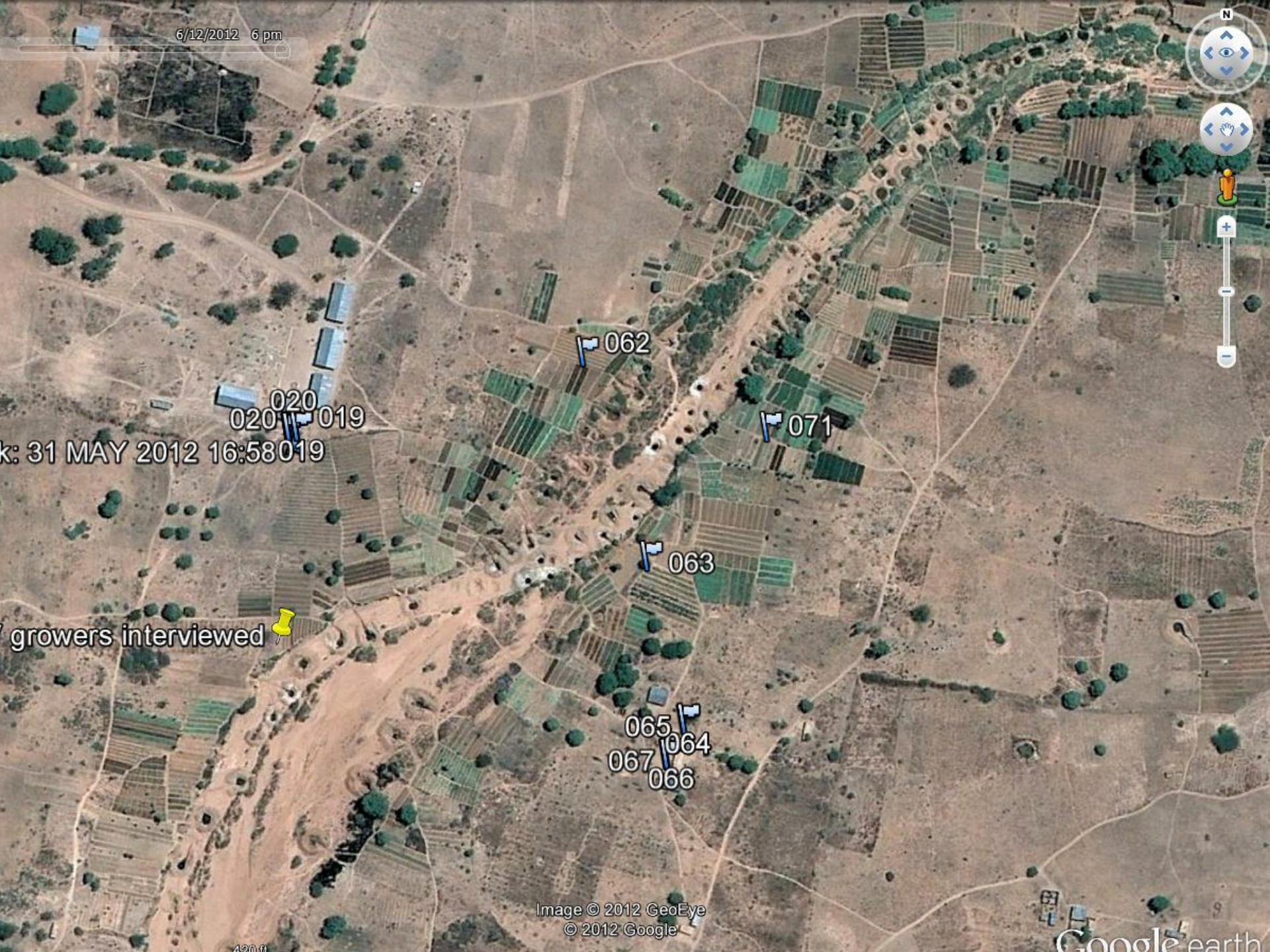
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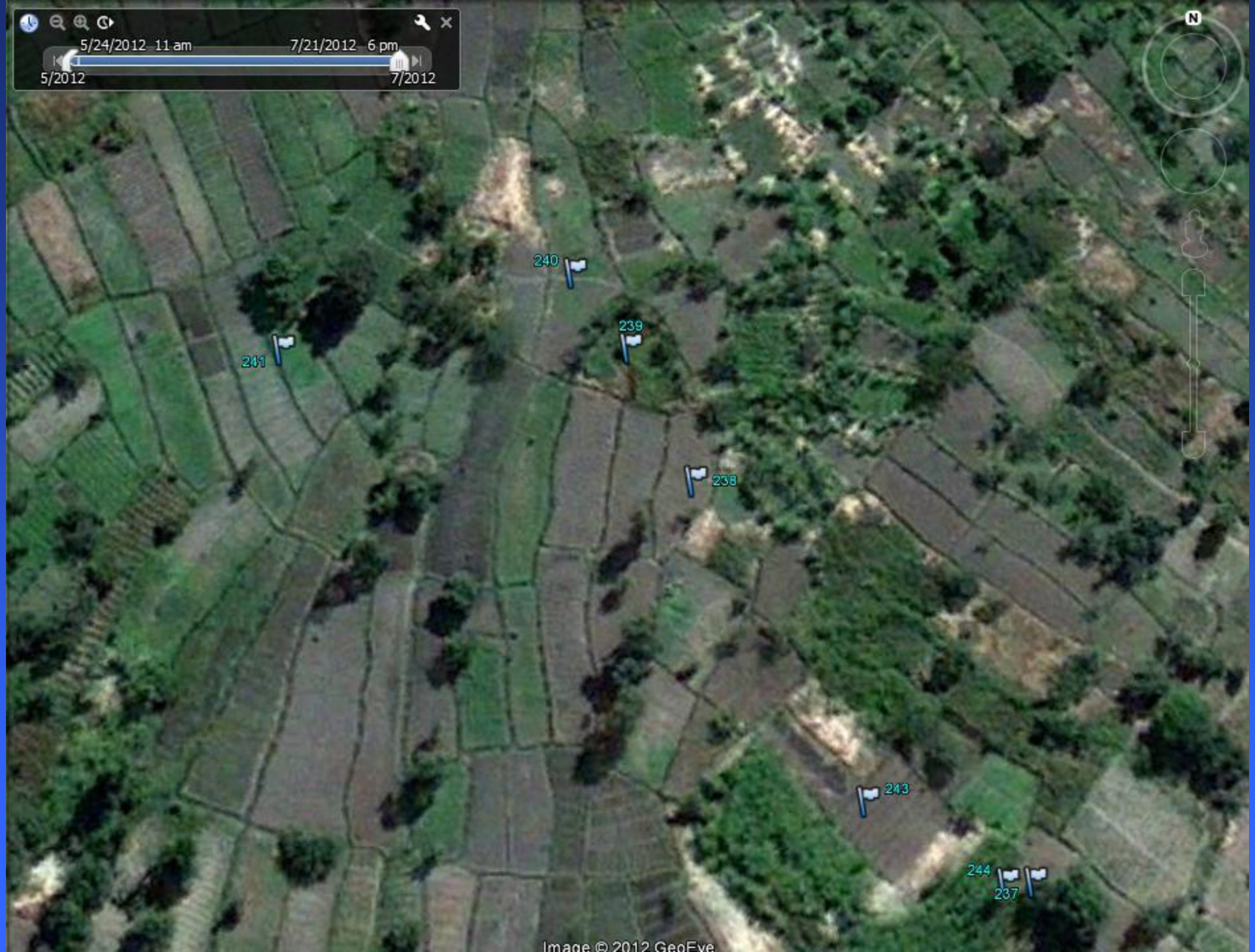
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SK

Archileus Mugisha

Master's student
St. John's University
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Program

Commonly sold African Indigenous Vegetables (AIVs) of Tanzania			
Common name	Botanical name	Swahili name	Family
Amaranth leaf	*Amaranthus* spp.	Mchicha	Amaranthaceae
Nightshade leaf	*Solanum scabrum/ villosum/americanum*	Mnavu	Solanaceae
Cowpea leaf	*Vigna unguiculata*	Kunde	Papilionaceae
Squash leaf	*Cucurbita pepo*	Maboga	Cucurbitaceae
Ipomea leaf	*Ipomea batata*	Matembele	Convolvulaceae
Cassava* leaf	*Manihot esculenta; M. glaziovii*	kisamvu	Euphorbiaceae
African eggplant	*Solanum aethiopicum*	nyanya chungu, ngogwe	Solanaceae
Spiderflower leaf	*Cleome gynandra, Cleome* spp.	Mgagani	Cleomaceae
Okra	*Abelmoschus* spp.	Bamia	Malvaceae
Ethiopian mustard leaf	*Brassica carinata*	sukuma wiki	Brassicaceae

Amaranth green *Amaranth* spp. – “Mchicha”

#1 vegetable for 83% of AIV sellers

Nightshade green *Solanum scabrum* – “Mnavu”

Ipomea leaf - *Ipomea batata* – “Matembele”

Sw. pt. for root

Squash (pumpkin) leaf - *Cucurbita* spp. “Maboga”

Burr gherkin

Cassava tree leaf (*Manihot glaziovii*) “Kisamvu”

M. esculenta for root

Spider plant - *Cleome gynandra* - “Mgagani”

Cowpea leaf - *Vigna unguiculata* – “Kunde”

African eggplant – *Solanum aethiopicum* – “Nyanya chungu” / “Ngogwe”

Okra – “*Abelmoschus esculentus – “Bamia”*

Ethiopian mustard – “*Brassica carinata* – “Sukuma wiki”

World Vegetable Center (AVRDC) in Arusha has improvement and seed programs for most of these AIVs. (Dinssa's talk yesterday.)

Mlenda A** - Jute mallow	*Corchorus spp.*	Mlenda	Tiliaceae
Mlenda B – False sesame	*Ceratotheca sesamoides*	mlenda wa sege	Pedaliaceae
Mlenda C – Wild simsim	*Sesamum angustifolium*	mlenda mwitu	Pedaliaceae
Bur gherkin leaf	*Cucumis anguria*	maimbe	Cucurbitaceae
Bitter lettuce	*Launaea cornuta*	mchunga	Asteraceae

Survey

4 regions

45 interviews of AIV sellers in each region

Questionnaire of 160 questions

Emphasis on post-harvest

Sellers ranged from mobile (basket on head) to sidewalk sellers to market stall.

Plus key informant interviews of producers

Sellers:	96% female
Growers:	71% female, 29% male
Sellers average daily:	$10.12 (Tzs 16,600)
% with cell phones:	62%
Avg. daily wt. of AIV:	
Rainy, dry season	13.7, 10.7 kg
% AIV vs. non-AIV	69% AIV
Main non-AIVs:	Chinese cabbage, Sw. chard, head cabbage

Sell:	12 months/yr, 7 days/wk
AIV price change since 2008:	+50.5%
Price fluctuation in year: (bundle size changes, instead of price per bundle)	3.5%

Sellers buy 3 bundles for Tzs 100 and sell 2 for same price (33% markup)

Average seller of AIVs (composite, per day):

- 6.1 kg amaranth
- 3.7 kg nightshade
- 2.6 kg squash leaf
- 2.3 kg Ipomea leaf
- 1.6 kg cassava leaf
- 1.3 kg cowpea leaf

Amaranth. (115 out of 154)†:	
Average weight per day (estimate by seller)	7.3 kg
Average weight of 3 bundles (weighed on scale)	227 g
Average price of 3 bundles	135 Tsh
Price per kg	667 Tsh ($0.42)
Nightshade. (71 out of 154):	
Average weight per day	8.1 kg
Average weight of 3 bundles	381 g
Average price of 3 bundles	215 Tsh
Price per kg	801 Tsh ($0.50)
Squash leaf (63 out of 154)	
Average weight per day	6.3 kg
Average weight of 3 bundles	325.6 g
Average price of 3 bundles	160.0 Tsh
Price per kg	561Tsh ($0.35)
Cassava leaf (41 of 154)	
Average weight per day	6.1 kg
Average weight of 3 bundles	312.3 g
Average price of 3 bundles	172.0 Tsh
Price per kg	640 Tsh ($0.40)
Ipomea leaf (51 of 154)	
Average weight per day	6.8
Average weight of 3 bundles	218.3
Average price of 3 bundles	130.0
Price per kg	675 Tsh ($0.42)
Cowpea leaf (37 of 154)	
Average weight per day	5.6 kg
Average weight of 3 bundles	353.5 g
Average price of 3 bundles	193.1 Tsh
Price per kg	622 Tsh ($0.39)

67% of sellers rent table/stall space
20% sell from plastic laid on ground
10% are mobile (basket on head)

Stall space rents for \$0.11 / M^2 per day
Avg is 2.6 / M^2 of space

56% of all sellers sell under roofed structure
21% full shade, no roof
20% full sun

Storage:

70% of sellers could not answer question about whether they wanted refrigerated storage.

Remaining would pay $0.18 to store 5 kg for 1 day

At end of business day - sellers have an average of 1.5 kg unsold (out of approx. 12kg total at start of day (13%).

62% is stored for sale the next day.

Post-harvest losses low?

AIV production:

Average plot size: 0.66 hectares
- 100% irrigated
- Decreases to 0.53 ha in dry season

AIV seed source:
- 75% commercial seed
- 12% local market
- 12% saved

Manure generally applied, some use some synthetic fertilizer.

Insecticides used on some of the AIVs but most are not sprayed. Non-AIV vegetables sprayed much more often.

Average # of days from last pesticide application to harvest: 10.9 (grower estimate)

Herbicides rarely used. Labor for weeding cheap at $2-3 per person day

Only 11% of growers had heard of certified organic production.

Many growers sell vegetables by the bed (40-60 kg) to middlemen.

When supply limited, can sell for Tsh100,000 ($62.50) per bed.

When supply high, as low as Tsh10,000 ($6.25) per bed (common).

No co-operative marketing system, nor any cell phone based system as in Kenya.

Only informal network via cell phone.
Cell phones have potential for more systematic market information system.

Computer use very low – below 1%.

Packaging for transport: nylon reinforced plastic bags.

1M x 1.5M

Post- harvest:

Harvest done in afternoon.

Culling and grading done by 31% of growers.

Post-harvest washing

55% No washing

24% Tap water

14% Stream water, not drinkable

6% Stream water, drinkable

Storage overnight for transport to market very early the next morning.

Average distance to market: 11.5 km, taking 1.5 hours
50% in passenger van (*daladala*)
29% hired truck
13% bicycle

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